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[COMMITTEE PRINT]

SOVIET SPACE PROGRAMS, 1971-75  
GOALS AND PURPOSES, ORGANIZATION, RE-  
SOURCE ALLOCATIONS, ATTITUDES TOWARD  
INTERNATIONAL COOPERATION AND SPACE  
LAW

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STAFF REPORT

PREPARED FOR THE USE OF THE

COMMITTEE ON  
AERONAUTICAL AND SPACE SCIENCES  
UNITED STATES SENATE

BY THE

FOREIGN AFFAIRS AND NATIONAL DEFENSE DIVISION  
AND ECONOMICS DIVISION OF THE CONGRESSIONAL RE-  
SEARCH SERVICE AND THE EUROPEAN LAW DIVISION OF  
THE LAW LIBRARY, THE LIBRARY OF CONGRESS

VOLUME II



AUGUST 30, 1976.—Ordered to be printed

Printed for the use of the Committee on Aeronautical  
and Space Sciences



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WASHINGTON : 1976

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S. CON. RES. 113

Agreed to August 30, 1976

*Resolved by the Senate (the House of Representatives concurring),*  
That there be printed for the use of the Senate Committee on Aeronautical and Space Sciences one thousand five hundred additional copies each of volumes 1 and 2 of its committee print entitled "Soviet Space Programs, 1971-1975", Ninety-fourth Congress, second session, prepared by the Congressional Research Service with the cooperation of the Law Library, Library of Congress.

Attest:

FRANCES R. VALEO,  
*Secretary.*



## LETTER OF TRANSMITTAL

---

THE LIBRARY OF CONGRESS,  
CONGRESSIONAL RESEARCH SERVICE,  
February 17, 1976.

Hon. FRANK E. MOSS,  
*Chairman, Committee on Aeronautical and Space Sciences,*  
*U.S. Senate, Washington, D.C.*

Dear Senator Moss: Pursuant to your letter of request, the Congressional Research Service with the cooperation of the Law Library has undertaken a study of the Soviet space program for the years 1971-75. The study has been divided into two volumes, of which this is the second.

The purpose of the study is to bring up to date previous reports, prepared by the Library of Congress for your committee, published in 1962, 1966, and 1971.

The second volume has been completed and is herewith submitted.

This volume has sought to review the Soviet goals and purposes in space, resource allocations, space organization, and the Soviet attitudes toward international cooperation in space and space law.

It should be emphasized that the report is based exclusively upon unclassified, open sources, both Soviet announcements and independent sources in the Western world. A comparison of information in this report with that in classified sources has not been made.

Dr. Charles S. Sheldon II, Chief of the Science Policy Research Division and Senior Specialist in Space and Transportation Technology, Congressional Research Service, has been coordinator of the project, and has been responsible for the summary.

Dr. Joseph G. Whelan, Senior Specialist in International Affairs in the Foreign Affairs and National Defense Division, Congressional Research Service, has been responsible for writing Chapters 1 and 4 (the latter with Mr. Francis T. Miko).

Dr. Domas Krivickas and Dr. Armins Ruis, Senior Legal Specialists in the European Law Division of the Law Library have been responsible for writing Chapter 5.

Dr. John P. Hardt, Senior Specialist in Soviet Economics and Mr. George D. Holliday, Analyst in Soviet Economics, Economics Division, Congressional Research Service, have been responsible for writing Chapter 3.

Mr. Francis T. Miko, Analyst in Soviet and Eastern European Affairs, Foreign Affairs and National Defense Division, Congressional Research Service, has been responsible for writing Chapter 2.

The study has been reviewed by appropriate individuals both in Government and outside in the interest of accuracy and security, although the final responsibility rests with the authors and the Congressional Research Service.

Sincerely yours,

NORMAN BECKMAN,  
*Acting Director.*



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U.S. SENATE,  
COMMITTEE ON AERONAUTICAL AND SPACE SCIENCES,  
*Washington, D.C., June 11, 1976.*

HON. FRANK E. MOSS,  
*Chairman, Committee on Aeronautical and Space Sciences,*  
*Washington, D.C.*

DEAR MR. CHAIRMAN: Transmitted herewith is a report, Soviet Space Programs, 1971-1975, in two volumes. The report was prepared for the use of the Committee by the Congressional Research Service, with the cooperation of the Law Library, Library of Congress. This report is a follow-on to similar reports published at intervals since 1962. It is, as are its predecessors, a comprehensive and detailed study of the Soviet space program.

Volume I provides an overview of the Soviet space program, its facilities and hardware, the manned and unmanned Soviet space missions, Soviet bioastronautics, Soviet civilian and military applications, and projects future Soviet space plans. Volume II examines the goals and purposes of the Soviet space program, the organization of space activities in the Soviet Union, allocation of resources to Soviet space activities and Soviet attitudes towards international space cooperation and space law.

The report was prepared under the direction of Dr. Charles S. Sheldon, II of the Congressional Research Service, Library of Congress. Dr. Sheldon, one of the free world's foremost authorities on Soviet space activities, is also the major contributor to the study. Other parts of the study were prepared by other experts in the Library of Congress, and Geoffrey E. Perry, consultant from the United Kingdom.

Mr. Fred Doering of the Government Printing Office prepared the report for printing.

In every respect this report is a remarkable accomplishment. It represents scholarship at the highest level but was done at minimum cost.

I believe that this study of Soviet space programs has resulted in an important report and will be most useful to the Committee and to other members of the Congress.

Respectfully,

GILBERT W. KEYES, *Staff Director.*



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## SUMMARY

By Charles S. Sheldon II\*

### I. POLITICAL GOALS AND PURPOSES OF THE U.S.S.R. IN SPACE

#### A. INTERNATIONAL SETTING, 1971-1975: EMERGING DETENTE IN SOVIET-AMERICAN RELATIONS

Science and technology are major forces shaping the 20th Century. Space exploration as a manifestation of these also impinges upon international relations.

After World War II, there was a protracted period of "cold war". However, the Cuban missile crisis brought a sobering and constricting influence on reliance on nuclear deterrence. Also, there has been more pluralism in the relations among states, with old alliances reshaped and less clear cut.

In the 1970's, detente has been favored as a policy, and interdependence among nations of many ideologies is recognized. The course of detente has not been smooth, with Vietnam and the Middle East crises examples of severe tension.

The opening talks and visits to China, summit meetings with the Russians, and the SALT I (strategic arms limitation talks) agreement have all strongly influenced the atmosphere between the two super powers.

Detente has continued to be strained by the issue of human rights in the Soviet Union, and clashes of interests in such areas as Portugal and Angola. Yet there are enough common interests between the super powers that despite all the strains and clashes, there are growing areas of accommodation and exchange.

#### B. SOVIET POLITICAL USES OF SPACE

##### 1. *The climate in 1971*

In 1971, the Russians in their media seemed more devoted to attacking U.S. policies related to Vietnam than in recognizing successes in the Apollo program. The unmanned Lunokhod rover was touted as a better approach than the high cost and risky manned Apollo flights. An earlier theme of attacking the American space program on the grounds of its militarization had largely disappeared. The Soviet space program was still described in terms suggesting its high degree of perfection. Apollo was described as a risky aberration, while the true path to further progress was linked to Soviet successes in Earth orbit. Soviet leaders gave high visibility to the Soviet space program and their personal links with it. Emphasis was put on the practical benefits which would flow from the program.

---

\*Dr. Sheldon is chief of the Science Policy Research Division, Congressional Research Service, The Library of Congress.

The deaths of the three Soyuz 11 crew members was a severe blow, but special honors and rituals attended their funeral, and their sacrifices were taken as important to future achievements.

## 2. *The Climate in 1975*

In 1975, the climate was quite different. The Apollo-Soyuz Test Project received tremendous attention and was heralded as a building block to further improvement in relations between two partners of similar capabilities in space. Of necessity, there was some easing of space secrecy on the part of the Russians as a condition of the co-operative effort. At the same time, the political uses of space to glorify achievements of the Soviet system continued, and there were sharp limits to the amount of openness.

### C. SOME GENERALIZATIONS

Soviet space activities have been manipulated to serve certain political purposes. The political leadership of the Soviet Union holds the commanding position in determining the nature of space activities to augment their goals and purposes. Their commitment to the space program remains very strong.

## II. ORGANIZATION AND ADMINISTRATION OF THE SOVIET SPACE PROGRAM

### A. INTRODUCTION

The purpose of the chapter is to understand from the open literature how the Soviet space program is organized and how it functions in relation to other Soviet institutions. The task is made difficult by Soviet secrecy in this regard, and there may be a marked difference between the formal organization of the program on paper, and the realities of working relationships.

### B. GENERAL SKETCH OF THE SOVIET DECISION-MAKING PROCESS

The Communist Party is the dominant force in all spheres of Soviet life. Its Central Committee is the continuing body of power, but is too large to run daily affairs, which are determined to a greater extent by the Politburo and its Secretariat.

The formal Soviet Government is built in parallel with the Party with largely overlapping memberships in key posts. The Supreme Soviet meets every four years, but the most significant organization is the Council of Ministers, in practice selected by and controlled by the Central Committee of the Communist Party. The ministries and State committees carry out the day-to-day tasks of the Soviet Government.

### C. ORGANIZATION FOR DECISION-MAKING ON SPACE AFFAIRS

There has never been an organization chart or description of the Soviet mechanisms for running their space program made public by the Soviet Government. While there is a complexity of overlapping organizations of Party and Government, for most functions, there seem to be key individuals who are personally responsible for the



performance of certain functions. Presumably goals and priorities are set by the Politburo. It is possible that D. F. Ustinov is the key member in the Politburo concerned with space, but decisions probably are also strongly influenced by Andrey Grechko, the Defense Minister, and by Peter M. Masharov, who handles science and related fields. Another key figure may be Vladimir A. Kirillin, Chairman of the State Committee on Science and Technology. His organization is the highest level government coordinating body for scientific work.

Within the Ministry of Defense, the Strategic Rocket Forces, commanded by General Vladimir F. Tolubko, conduct all launches. The Air Force is responsible for cosmonaut training.

The Soviet Academy of Sciences may play a more active role in the space program than its American counterpart, but it is not clear that it sets real priorities, nor has the same degree of manpower and logistics support as do the military institutions which operate space related activities. Until recently, the President of the Academy, Mstislav V. Keldysh, was also a prominent space scientist. Under the Academy are many commissions, institutes, and organizations which deal with space research. The two most prominent public spokesmen for some years were Leonid I. Sedov and Anatoliy A. Blagonravov. More often in recent years, the Chairman of the Interkosmos commission concerned with international activities, Boris N. Petrov, is the principal public spokesman on space matters.

Western analysts disagree as to whether there even is a Soviet space agency per se. Of leaders close to actual hardware and operations, the late Sergey P. Korolev after his death was confirmed as the anonymous Chief Designer. It is possible that he was replaced by Mikhail K. Yangel, but he is now dead, too. He may have been replaced by a one-time Korolev rival, Vladimir N. Chelomei. Valentin P. Glushko was the principal designer of rocket engines. Aleksey Isayev, now dead, was another prominent designer of rocket engines.

Many of the prominent figures in the Soviet space program have not been identified in public or have signed review articles in the press not under their own names, but under pseudonyms.

### III. RESOURCE BURDEN OF THE SOVIET SPACE PROGRAM

#### A. INTRODUCTION

The Soviet space program has reflected national economic, political, and military goals to a larger extent than the U.S. program. The program has been, like the military establishment, a favored claimant on research institutions and industrial support for use of the available Soviet resources. Both Nikita Khrushchev and Sergey P. Korolev played special roles in establishing this high priority and both have passed from the scene. Probably since that time, space projects which did not contribute directly to military strategic systems have undergone the closest scrutiny. They have had to make many choices about their space goals and how best to compete or cooperate with the United States.

#### B. SOVIET SECRECY

No space expenditure figures are listed in the published Soviet State budget. There is a long tradition of hiding information viewed as State secrets. The intermixing of space facilities for military and

civilian purposes has contributed to the strictness of the rules on disclosing data on space resources. Hence, Western estimates must be built upon selective and incomplete monitoring and interpretation of indirect data, plus extremely selective Soviet releases made for prestige purposes.

### C. SOVIET SPACE SPENDING

Defense and space spending have been increasing about 3 percent a year in the period 1960-1973. The space part of the defense budget moved from 2 percent in 1960 to about 11 percent in 1972. The CIA claims Soviet space expenditures amount to about 1 percent of their GNP, while the Department of Defense suggests a more likely range is 1 to 2 percent. Comparisons are made difficult by the inherent difficulties of costing their programs and converting them to dollars, allowing for the preferential pricing policies which may understate the full costs of these programs for defense and space.

### D. BURDEN AND OPPORTUNITY COSTS OF THE SOVIET SPACE PROGRAM

A way of looking at the burden of the Soviet space program is to ask what other benefits are foregone because of the use of resources for space. Apparently Soviet choices involve inputs both from the Party and from institutional interests in science, the military, industry, and economic planning. There has been an especially strong preference for military space missions.

Presumably much of the Soviet space program visible today is a reflection of decisions taken several years ago. There is Western speculation whether currently, the same high priority is being afforded space, or whether a period of diminishing returns has been reached.

The planning for the next fifteen years suggests so many capital-intensive projects for the national economy that the opportunity costs for space may very well rise. It is not at all clear that in a squeeze the leaders will necessarily opt for holding up the levels of military space expenditures to the detriment of civilian space if they see other benefits the latter may bring, including cooperation with the United States.

### E. FUTURE PROSPECTS

The priorities afforded the Soviet space program will depend upon the perceptions of the Soviet leadership as to economic costs and political gains. If arms limitations are negotiated, more cooperation in space seems likely, and this might bring an increase in priority for civilian space programs.

## IV. SOVIET ATTITUDE TOWARD INTERNATIONAL COOPERATION IN SPACE

### A. SPACE COOPERATION: AN IDEA WHOSE TIME HAD COME

In July 1975, Soviet-American space cooperation reached a new climax in the successful execution of the Apollo-Soyuz Test Project (ASTP) with the joint docking in orbit of manned craft from the two countries. Soviet cooperation has included not only bilateral efforts with the United States but also with France and other countries, and multilaterally with other countries of the Soviet Bloc.

## B. SOVIET-AMERICAN BILATERAL SPACE COOPERATION

The ASTP gradually emerged from both informal, unofficial suggestions and from step-by-step negotiations at governmental levels. Direct proposals were made in 1970, and the test mission objectives were agreed upon in 1971. ASTP was paralleled by other efforts related to exchange of lunar samples, use of weather data, coordination of sounding rockets, and joint work in space medicine and biology. Planetary data were also exchanged.

The Brezhnev-Nixon summit in 1972 represented something of a turning point in detente, pulling together many agreements, a number of which had been negotiated earlier at lower levels. These included formalizing the ASTP draft prepared by George Low of NASA and V. A. Kotelnikov, Acting President of the Soviet Academy of Sciences. The formal agreement was signed by President Nixon and Aleksey N. Kosygin, Chairman of the U.S.S.R. Council of Ministers. Progress was noted and the agreements reconfirmed when General Secretary Brezhnev visited the White House in 1973.

There was much joint work with multiple visits by technicians and cosmonauts and astronauts between the two countries. At a personal level, many of the contacts grew very close and were quite successful.

Official U.S. and Soviet statements on ASTP showed strong support and praise for the project. Reviews, in the American press were mixed, and some political views in the United States reflected skepticism as to the value of the project on the grounds of high cost, low benefits to be gained, safety, and giveaway of American technology. Additionally, some thought the prestige of the repressive and "backward" Soviet State was being enhanced through the acceptance of the U.S.S.R. as an equal partner.

## C. OTHER AREAS OF SOVIET COOPERATION

As a result of the President de Gaulle rapprochement with the Soviet Union in 1966, joint French-Soviet space efforts were initiated that year. These have been continued by Presidents Pompidou and Giscard d'Estaing. There is a permanent mixed Soviet-French commission which selects and sets the terms for specific projects of space cooperation.

Soviet bilateral cooperation with India began on a small scale as early as 1963. Under a 1972 agreement, plans were made for the launch of an Indian satellite by the Russians, and this was accomplished in 1975. A follow-up launch is now planned.

By far the most active cooperative agreements are those of the Interkosmos Council which controls multilateral efforts of the Soviet Bloc nations. Some 14 Interkosmos satellites have been sent to orbit. The same nine nations are also members of Intersputnik which is the Soviet Bloc equivalent of Intelsat.

The Russians also work on space policy matters through the United Nations, the International Astronautical Federation, and the Committee on Space Research (COSPAR) of the International Council of Scientific Unions (ICSU).



#### D. SPACE COOPERATION: SOME GENERALIZATIONS

During the 1971-1975 period, the Russians have generally maintained a positive attitude toward space cooperation in contrast with much of their position of the 1960's. They have actively participated in both bilateral and multilateral cooperative space activities. The ASTP project was the culminating event of the period.

Cooperation in part grew out of a growing mutual confidence and a political desire to enhance détente. It also comes from an awareness that some costs in the future will exceed the economic and technical capabilities of any single nation. But space cooperation could regress very quickly if political conditions worsen.

### V. SOVIET ATTITUDES TOWARD OUTER SPACE LAW

#### A. GENERAL PRINCIPLES OF OUTER SPACE LAW

Current Soviet policy is built around international cooperation in space activities. This has led to treaties governing the use of outer space, the rescue and return of astronauts and objects from space, liability for damage caused by objects launched into space, and registration of objects launched into space. At the same time, Soviet jurists believe U.S. representatives are trying to dominate the writing of rules and of treaties to fit U.S. interests. The Russians recognize remaining acute problems where the principles developing for space law conflict with the sovereign and territorial or air space rights of states. They also draw some distinctions between the rules which should govern relations generally among states, and those that should apply within the bloc of "Socialist" states.

#### B. CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS

The treaty on liability was difficult to negotiate. The treaty establishes an absolute liability for damages caused by space objects, except to the extent that the launching state can prove fault on the part of the injured party through some negligence. The damages to be compensated have to be direct and tangible. The treaty sets no upper limit to the compensation which might have to be paid for damages.

The treaty deals not only with the roles of individual states but of joint operations and various kinds of consortia. Claims commissions would be required to arbitrate the amount of damages to be assessed.

#### C. REGISTRATION OF OBJECTS LAUNCHED INTO OUTER SPACE

Voluntary registration of space launchings began under the terms of a 1961 United Nations resolution. After protracted debate, agreement was reached late in 1974 on the text of a mandatory registration treaty, designed to support the identification of objects, as a part of implementing the liability treaty. Much controversy had surrounded the

issue of requiring identifying marks on all space objects to help in the assigning of responsibility for damages. This suggestion presented great technical difficulties, and while marking was encouraged, it did not seem by itself a certain way of identifying the responsible launching state.

#### D. THE "INTERKOSMOS" PROGRAM

The Russians proposed their Soviet Bloc cooperative space program as early as 1965, and it was formalized by an agreement in 1970. Its activities are considered joint in nature, even if the agreement does not necessarily create an international organization.

#### E. INTERSPUTNIK

The Intersputnik agreement was signed in 1971 after three years of negotiation. Its purpose was to create an international communications system using Earth satellites. Intersputnik was to be considered a juridical person. It was structured so that each member country had one vote, with decisions made by at least a two-thirds vote. It differed from Intelsat in that nonmembers of the ITU (International Telecommunications Union) could join, and it did not use the weighted voting formula which in the early years of Intelsat gave the United States a majority control. Intersputnik has remained primarily a regional organization of smaller appeal than Intelsat.

#### F. SOVIET BILATERAL AGREEMENTS ON COOPERATION IN OUTER SPACE

Soviet jurists have spent less time discussing the principles of the bilateral agreements such as those of the Soviet Union with France, the United States, and India, than they have on other issues of international relations of outer space activities and law.

#### G. THE DRAFT OF AN INTERNATIONAL TREATY RELATING TO THE MOON

The Russians proposed a treaty on use of the Moon in 1971. Essentially, the draft spelled out detailed rules already adopted in more general form in the treaty on use of outer space. Demilitarization of the Moon was repeated in specific form.

Additionally, the Moon was not to be appropriated by any state or by any other organization or person. Freedom to explore the Moon was made explicit. Questions on use of the Moon's resources were more difficult to resolve. Other issues involved contamination of the Moon, and visits to the bases of other states, liability for damages, and consultation among states. A final draft has not been agreed upon as yet.

#### H. REMOTE SENSING OF EARTH RESOURCES BY SATELLITE

A working group at the United Nations considered rules under which remote sensing of resources might be done, and the issues of freedom of flight and protection of sovereign rights proved to be quite difficult. The conditions under which information might be released or shared, brought debate and differences of view. No final resolution has been reached.

## I. DIRECT BROADCASTING

The Russians have spoken against the threat of direct broadcasting from space to individual receivers as a form of external intervention in domestic affairs. The Soviet draft calls for cooperation and prohibits misuse of direct broadcast, and would permit it only with permission of the receiving state. They even list prohibited topics of transmission, both rather all-encompassing and at the same time vague. Disagreements among states are still so extensive that no treaty has yet reached the level of an agreed upon draft.



## CHAPTER ONE

# POLITICAL GOALS AND PURPOSES OF THE U.S.S.R. IN SPACE

By Joseph G. Whelan\*

### I. INTERNATIONAL SETTING, 1971-1975: EMERGING DETENTE IN SOVIET-AMERICAN RELATIONS

#### A. MAJOR TRENDS IN SOVIET-AMERICAN RELATIONS, 1965-1975

##### *1. Space and International Relations*

Science and technology are two of the main forces shaping the 20th Century: they form the basis for modern industrial civilization; they are principal instrumentalities in the search for international development; they provide the energy for the Third and Fourth World's thrust into modernity. In brief, they are looked upon as a sort of Aladdin's lamp, insuring its possessors, creativity, progress, and success in the Modern Age.

Yet science and technology have created the most perplexing dilemmas for modern man. These dilemmas derive from an ambivalence that enables them to be sources of peace, creativity, and progress, and conversely of war, decay, and retrogression.

Space exploration uniquely manifests this ambivalence in science and technology: it has broadened man's vision; it has opened a new world of expanding knowledge; and it has created a new environment of challenge for mankind against the forces of nature. Yet space exploration became enmeshed in the politics of the Cold War. The negative effects were far-reaching: Soviet-American rivalry was stimulated; world tensions heightened; and an enterprise, naturally amenable to cooperative activity among nations for the good of mankind and science, was diverted from this purpose and transformed into an instrumentality of political, even potentially military, conflict.

Space exploration is, therefore, more than strictly a scientific and technological undertaking: it impinges upon politics; it is inevitably a problem in international relations; it is one of many areas in international life today where science, technology, and diplomacy converge. Accordingly, this study, as in the case of its three predecessors, opens with a summary of and commentary on recent developments in Soviet foreign policy, more particularly in Soviet-American relations.

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## 2. *Changing Cycles in International Relations: From Cold War to Interdependence?*

a. *Onset of Cold War.*—International politics appear to be entering a new cycle of structural change.<sup>1</sup> The Cold War in Soviet-American relations seems to have been decompressed and modified by detente. Bipolarity has given way to multipolarity. And, the changing requirements of international politics are said to have introduced a new functionalism in the conduct of international relations. Interdependence is the term used to describe this newly perceived cycle of change. The essence of interdependence is survival through international cooperation, a mode of diplomacy imposed by the imperative solutions to global problems.

In the early postwar period the distribution of power and the alignment of world forces had radically changed. New states and new constellations of power emerged to fill the power vacuums in the world created by the destruction of the wartime Axis alliance and by the liquidation of Western colonial systems. This transformation of power arrangements was the beginning of the era of bipolarity and global confrontation between the Soviet Union and the United States. It was also the beginning of an era in which the processes of decolonization in the less developed countries (LDCs) of Asia and Africa were for the first time to play a prominent role in contemporary world affairs.

The structure of world politics was thus made up of three major components of power: the United States and its allies; the Soviet Union, its satellites in Eastern Europe, and supporters throughout the world Communist movement, including China; and the Third World of neutralist states in Asia and Africa, emerging from colonialism to independence.

b. *Changes in late 1950s and early 1960s.*—Two fundamental changes occurred in the late 1950s and early 1960s that were to alter this structure of international relations. One change, occurring after the Cuban missile crisis of 1962, was the sobering and constricting influence of nuclear deterrence. Mutual awareness of nuclear energy's awesome power had a two-fold effect: it limited the options open to the United States and the Soviet Union in the use of power against one another to achieve political goals; and it reduced the range of their influence over other nations. In brief, nuclear power was limited as an instrument for political manipulation and for applying pressure on the international scene. The other change was the growing diversity within international political systems that brought an end to an effective bipolarity and generated political pluralism throughout the world.

Except for the growing complexity of the arms race, stimulated in part by unimpeded progress in advanced weapons technology, nuclear deterrence has remained a fixed component in the structure of world politics. However, political pluralism continued to evolve, changing power relationships for both the United States and the Soviet Union.

<sup>1</sup> Section I of this chapter draws upon the following sources: Whelan, Joseph G. and Francis T. Miko. *Detente in Soviet-American relations, 1972-1974: A survey and analysis*. Washington, Congressional Research Service of the Library of Congress, 1975. 115 p. (Multifith: 75-169A); Miko, Francis T. *Soviet-American Relations, 1969-1974: A chronological summary and brief analysis*. In, U.S. Congress. House. Committee on Foreign Affairs. *Detente. Hearings before the Subcommittee on Europe, 93rd Congress, 2nd Session*. Washington, U.S. Government Printing Office, 1974, p. 485-533; and, Whelan, Joseph G., *Detente with the Soviet Union*. Issue Brief Number IB74120. Washington, Congressional Research Service of the Library of Congress, 1974. 8 p.

Their virtual monopoly on power was effectively contested, though on a lesser order of magnitude, by other claimants; namely, the Third World and competitors for power within their respective blocs. The emerging nations contributed to altering the distribution of world power and changing the world political environment, while centrifugal forces, working within both the East-West blocs, generated diffusion of power within the blocs, loosened the bond of group cohesiveness, weakened control from the center, and thus added to the general trend towards international pluralism.

*c. Further change in later 1960s and early 1970s.*—By the late 1960s and early 1970s, therefore, the structure of international relations had again been fundamentally transformed. What had once been a bipolar world was now transformed into a multipolar world. The Soviet Union and the United States maintained their primacy as nuclear superpowers, and in the final analysis they alone determined nuclear war or peace, but beyond this much had changed. Diversity had weakened the solidarity of their alliance systems. Within the Communist world, China's differences with Moscow could not be composed, and their dispute, growing steadily since the early 1960s, escalated to a first class power conflict. International communism, as a global political movement and once a significant component of Soviet power, was fractured into many pieces as new alignments along geographic and ideological lines were created within the movement and as new opportunities arose for constituent parties and member-states to assert greater claims of independence from the centralized authority of Moscow.

Limitations were now placed on Soviet power within the Communist movement, and in general its overall power base was substantially reduced. By 1972, China moved out of its self-induced isolation, established informal diplomatic relations with the United States, and began to play an active role in international relations as a Soviet competitor. As a consequence, a new triangular power relationship took shape constituting the Soviet Union, China, and the United States.

Political pluralism was also at work in the West. United States control over NATO and its predominance in Western Europe eroded as Europeans began to think of Europe as an independent political force and as Americans seriously debated the issue of troop withdrawals from the continent. A mood of neo-isolationism was enveloping the country as it entered into the post-Vietnam era.

Nations of the Afro-Asian neutralist bloc, having emerged from a heritage of Western colonialism, seemed to assert with greater persistency and effect their political claims between the competing East-West blocs, and to insist upon recognition of the bloc as an important though essentially unstructured power factor in the international arena. Japan, though emerging as one of the world's great economic powers, was reluctant to play a comparable political role in world politics. In this changing world environment even Latin America began to assume a foreign policy stance far more independent from its mentor to the North.

*d. Emergence of detente, 1972-1975.*—Thus, as Soviet-American relations entered the period of detente in 1972-1975, radical changes had indeed occurred on the larger international scene. But other changes were on the horizon whose full impact was yet to be felt



much less measured. The Arab oil embargo of 1973–1974 dramatized what specialists had long feared; namely, that the world was entering an era of shortages—in energy, food, and raw materials. The LDCs, possessors of much of the world's raw materials and resources in short supply, appeared at this juncture to have gained an unexpected leverage against the advanced industrial countries. Complicating the problem of shortages and inextricably part of it were the problems of an exploding world population and spreading inflation. Accelerated by the quadrupling of oil prices, inflation threatened many economies of the world. Other problems such as environmental pollution, use of ocean resources and the seabeds, and arms control imposed themselves with greater force on the conscience of global leaders.

*e. Interdependence: A new cycle in international relations?*—Foreign policy specialists now perceived the emergence of a new era of international relations in which nations of the world would be increasingly drawn into global arrangements for the orderly and fair distribution of essential resources and for the resolution of mounting global problems in which all nations had a stake. Interdependence was the term used to describe what was believed to be a newly emerging structure of international relations. It was said that the urgency of interdependence imposed a new requirement on nations, that of achieving interdependent solutions through functional diplomacy and international cooperation. Interdependence was said to offer mankind's only route to survival.

### 3. *Roots of Detente*

*a. Khrushchev's doctrine of peaceful coexistence, 1956.*—The principal trend that emerges from developments in Soviet-American relations during the time-span of this study—indeed, in the past 13 years—is the evolution of detente. Detente is generally construed to mean an easing of tensions in international relations. As a principle, guiding relations between the Soviet Union and the United States, it assumes that war between the two superpowers would be disastrous. The Soviet Union has been ostensibly committed to the principle of detente—or as the Soviets prefer, peaceful coexistence—at least since 1956. However, it has never denied its ideological commitment to “struggle” against world capitalism.

In contrast, the United States has been philosophically inclined to resolve differences with adversaries through peaceful means. Rather than being committed to “struggle”, it has in general sought to establish a harmony of interests with the nations of the world, including the Soviet Union. This philosophical inclination did not, however, preclude the use of force in defense of American national interests. Since the mid-1950s, therefore, the United States has responded affirmatively to indications of a Soviet desire for an accommodation in relations. Thus detente seems to be rooted, at least philosophically, in the mid-1950s when Khrushchev formally proclaimed the Soviet doctrine of peaceful coexistence and when the United States responded accordingly in a spirit of accommodation.

*b. Cuban missile crisis, 1962.*—As a matter of practical policy, however, detente seems to have had its roots in the Cuban missile crisis of 1962. In this crisis Soviet efforts to demonstrate that the balance of power had shifted to the Soviet advantage were thwarted by

American determination to meet this strategic challenge head-on. Thereafter, Russia's global thrust was diminished; serious efforts were made by both sides to stabilize their relations; but in an environment of improving Soviet-American relations Khrushchev laid the groundwork for expanding Soviet military power, both strategic and conventional. Specialists in military affairs reasoned that the Russians were determined never again to back off in a showdown with the United States. Still, detente was given a thrust forward, and conclusion of the partial nuclear test ban of 1963 (among other lesser but still positive measures) is now looked upon as a high point in what observers perceive to be an evolving spirit of detente.

#### *4. Course of Detente, 1965-1975: An Overview*

The course of detente in subsequent years was not smooth. Whatever momentum had been achieved in the last years of the Khrushchev era was arrested during 1965-1968 by American involvement in Vietnam, the provocative Soviet role in the 1967 Middle East crisis, and the Soviet-led Warsaw Pact invasion of Czechoslovakia in August 1968. Despite scattered evidence of improving Soviet-American relations during this period (e.g. conclusion of the nuclear non-proliferation treaty in the spring of 1968), it was not until 1969—some six months after tensions generated by the Czechoslovak crisis had subsided—that both countries seemed to move again in the direction of detente.

In viewing Soviet-American relations over the entire seven-year period 1969-1975, it seems that this relationship was marked by periods of tension and accommodation with a gradual movement towards an overall improvement in relations. The Vietnam War remained a source of tension until the signing of the Paris Peace agreement in January 1973. On two occasions (in 1970 and 1973) the outbreak of hostilities in the Middle East brought the United States and the Soviet Union to the verge of direct confrontation. Numerous other problems developed in their relations. Nevertheless, the overall picture was one of progress in the formation of a more stable relationship between the two countries. High points in this developing new relationship were the Moscow Summit of May 1972, the Washington Summit of June 1973, the Moscow Summit of June 1974 and the Ford-Brezhnev meeting at Vladivostok in November 1974.

In 1974, detente seemed to be characterized by significant increases in the depth and breadth of relations. From the basic goal of avoiding war, the United States and the Soviet Union moved to build an extensive network of interrelationships, so that some optimistic observers contended that detente might become irreversible. The validity of this judgment remains to be proven. In the fall of 1974, however, scholars spoke of a pause in the momentum of detente. In 1975, this pause seemed to become a fairly fixed condition as the structure of Soviet-American relations was tested by cross-currents of positive and negative trends. The future course of this relationship could be affected by a number of unanswered domestic and international questions.



## B. A YEAR OF TRANSITION, 1971

1. *Areas of Tension*

*a. Vietnam war, a persistent irritant.*—Moving from the general to the particular, it is possible to identify specific trends and high points in the period covered by this study which illustrate the alternating currents of progress and retrogression in detente. The year 1971 appeared to be a time of transition from the diminishing Cold War spirit to the gradual emergence of detente.

Areas of tension were clearly visible in Soviet-American relations during 1971, though varying in degree of seriousness. Vietnam remained a key source of contention. The United States had reduced its troop involvement from 530,000 at the beginning of 1969 to less than 140,000 by the end of 1971, but this disengagement of ground forces was balanced by escalation of the air war in Vietnam, Laos, and Cambodia. The Soviet Union was silent on troop reductions, but it sharply denounced the intensified U.S. bombings. Premier Kosygin referred to American "barbarism" in Indochina as a barrier to peace in international relations.

*b. Sino-Soviet dispute; improving Sino-American relations.*—Further deterioration of Sino-Soviet relations and signs of improvement in Sino-American relations served to arouse Soviet suspicions of American policy in the Far East. President Nixon's declaration of intention to initiate a dialogue with Peking, favorably received by the Chinese, was crystallized in a surprise announcement in July 1971 that the President would visit China sometime in 1972. The Soviet press responded with repeated warnings against anti-Soviet collusion, despite American assurance that its policy of rapprochement with Moscow remained unchanged.

*c. Other points of friction.*—Tensions continued in other areas of Soviet-American relations. Peace was no nearer in the Middle East as Soviet-American interests remained at odds. Continued Soviet probings in Latin America, notably Soviet naval visits to the Caribbean, evidence of Soviet efforts to establish a Caribbean naval base, and active support of "leftist" regimes in Chile and Peru, aroused concern in Washington. Declaration of the Pakistani-Indian War in December 1971, moreover, found the Soviet Union supporting India and the U.S. supporting Pakistan. Finally, incidents involving attacks upon Soviet officials and property in the United States by American extremist groups, provoked by Russia's anti-semitic campaign, and Soviet retaliation with attacks on American citizens in Moscow, provided small but steady irritants to Soviet-American relations.

2. *Areas of Accommodation*

*a. Nixon's mixed assessment.*—Areas of tension were eventually counterbalanced by those of accommodation. In February 1971, President Nixon offered a "mixed" assessment of relations in his "State-of-the-World" message to Congress. He pointed to progress in SALT, the Berlin question, and cooperation in such areas as trade and exploration of outer space. But the importance of these positive developments was diminished by provocative Soviet action in the Middle East, Cuba, and Berlin; unrestrained Soviet anti-American propaganda; and the unacceptable Soviet proposal for a general

European security conference in the absence of a political basis for improved relations. Reduction of American forces in Europe was pronounced impossible without Soviet reciprocity.

*b. Progress in arms control.*—By the end of 1971, however, Soviet hostility was muted as accommodation was reached in many areas of relations, particularly in arms control and East-West relations in Europe. In May 1971, a breakthrough occurred at the Helsinki strategic arms control talks. A compromise was announced between the American position, requiring across-the-board strategic arms curbs, and that of the Soviets, calling exclusively for limitations on anti-ballistic missiles (ABM). Arms control discussions in 1971 would now emphasize ABMs with some limitation placed on the number of offensive missiles (ICBMs). Though the SALT I agreement was not reached until 1972, the Helsinki talks produced two agreements in September 1971: one was directed at eliminating the danger of accidental nuclear war, and the other at improving satellite "hot line" communications.

*c. Progress on European security.*—Significant progress was also achieved on European matters. The status of Berlin, long a bone of contention in East-West relations, was clarified in a preliminary Four Power agreement signed in September in which the Soviets accepted responsibility for the unimpeded flow of traffic between West Berlin and West Germany. The Western powers had made final approval of the Soviet-West German treaty, normalizing relations and resolving frontier questions, contingent upon Soviet acceptance of this agreement. Moreover, a compromise was reached on the convening of a European security conference (CSCE), a Soviet objective designed to legitimize Soviet wartime conquests and formally fix East-West frontiers, and a conference on the limitation and balanced force reduction (MBFR), a Western prerequisite designed to reduce Soviet military power in Europe and to balance it with that of NATO. In May 1971, Brezhnev, who a month before had reaffirmed Soviet adherence to its policy of peaceful coexistence at the 24th Congress of the CPSU, suggested that two separate conferences be held simultaneously. The way was thus cleared for major East-West talks on the security of Europe.

*d. Improving Soviet-American commercial relations.*—Furthermore, the pace of improving Soviet-American commercial relations was visibly quickened as the American policy of linking trade with improving political relations as a prerequisite shifted to actively encouraging commercial ties with the Soviet Union independent of and as an inducement for better political relations. By the end of 1971, an exchange of high level trade authorities and a tendency by the U.S. to lower restrictions on Soviet trade appeared to solidify improving commercial relations.

*e. Other areas of accommodation.*—Finally, symbolic of the steady movement towards detente were:

- the October 12 announcement of President Nixon's visit to the Soviet Union in the spring of 1972;
- the agreement of October 22, designed to prevent accidents at sea; and
- the series of agreements concluded throughout the year on space; that of January 21 to expand cooperation in space

research and sharing of data; of October 20 on exchanging data on Mars flights; and of December 30 on the exchange of data on the biological effects of spaceflight.

### 3. *On balance*

In every sense, therefore, 1971 was a year of transition from Cold War to detente in Soviet-American relations. Despite persistent irritations, the areas of accommodation appeared to far outweigh those of tension. Atmospheric conditions in relations seemed to alter perceptibly as the way was now cleared for reaching further agreements and formally ratifying those that had already been reached.

## C. SUMMIT MEETINGS AND DURABLE PROBLEMS, 1972-1974

### 1. *Positive Developments*

*a. High point in detente.*—In retrospect the period 1972-1974 seemed to be a high point in the improvement of Soviet-American relations. Momentum toward detente quickened as significant agreements were concluded and a close and more formally binding relationship on both sides was established. A pattern of annual summit meetings served to advance and solidify the seemingly enlarging spirit of detente.

*b. Winding down Vietnam war.*—The winding down of American involvement in Vietnam no doubt contributed a great deal to improving the climate of Soviet-American relations and clearing the way for summit talks. In 1972, it was apparent that both sides wished to deemphasize the Vietnam issue in their relationship. President Nixon's order to blockade all North Vietnam ports and mine Haiphong and other harbors immediately prior to his Moscow trip in May 1972 was met with surprising restraint on the Soviet side. Twice during 1972 Soviet leaders conferred with the North Vietnamese in what was believed to be efforts to end the war. A peace agreement was finally concluded in January 1973 after a temporary disruption of the Paris peace negotiations by renewed American aerial bombing of North Vietnam in December undertaken as talks threatened to break down. Perhaps one of the most formidable obstacles to Soviet-American accommodation was thus removed.

*c. Meetings at the summit.*—The four summit meetings during 1972-1974 seemed to serve four purposes: (1) to ratify and thus formalize agreements already reached; (2) to set the priorities for future negotiations; (3) to establish a formal structure within which detente was to progress; and (4) in general, to create a political environment for building mutual confidence.

President Nixon initiated the pattern of summit conferences with his visit to Moscow during May 22-29, 1972. With General Secretary Brezhnev, he signed numerous agreements, the most important being the Strategic Arms Limitation accord (SALT I), imposing limits on total numbers of American and Soviet offensive and defensive missiles. Both sides agreed to begin consultations on a European security conference (CSCE) after final signature of the Four Power agreement on Berlin and to pursue discussions on mutual force reduction (MBFR) in Central Europe. They also initialed several other agreements previously negotiated including accords on cooperation in medical research, space exploration, avoidance of collisions at sea, increased



cultural and educational exchanges, and joint efforts at solving environmental problems. Agreement was also reached on measures to expand commercial relations, such as, the creation of a joint U.S.-U.S.S.R. Commercial Commission.

The second in this current series of summits was General Secretary Brezhnev's visit to the United States during June 17-25, 1973. At this meeting President Nixon and Brezhnev signed a declaration of principles pledging to accelerate strategic arms limitation talks with the goal of concluding a SALT II treaty by the end of 1974. Other accords were signed on cooperation in oceanography, peaceful uses of atomic energy, expansion of cultural exchanges, and on expanding commercial relations. Agreements reached at this Washington summit were generally regarded as evidence of Soviet-American determination to continue the momentum of detente.

The third summit took place during June 27-July 3, 1974 when President Nixon journeyed to Moscow to confer with Soviet leaders. This summit was conducted against the background of growing problems for President Nixon arising from the Watergate scandal. Only a limited agreement was reached on the strategic arms limitations at the second Moscow summit. Each side was restricted to one ABM site, and restrictions were placed on underground nuclear tests after 1976. Both sides pledged to continue efforts at settling international problems; to expand cooperation in medicine, space exploration, environmental protection, energy, and other areas; and to establish a broad framework for trade relations.

The fourth summit took place at Vladivostok on November 23, 1974 between the newly inaugurated President Gerald R. Ford and General Secretary Brezhnev. At first regarded as a "get acquainted" meeting, this summit produced a tentative agreement to limit the number of all offensive strategic nuclear weapons and delivery vehicles through 1985. Secretary of State Henry Kissinger described this development as a "breakthrough" in efforts to curb the arms race. Further negotiations were expected to take place in Geneva during 1975 on technical questions with the expectation that a final agreement could be signed during the Brezhnev visit to the United States in the summer of 1975. Press reports said this summit meeting and the agreement appeared to exceed expectations by far and undoubtedly would give "new impulse" to East-West accommodation at a time of uncertainties on both sides. Subsequently criticisms were made of the Vladivostok agreement on grounds that the so-called "cap" placed on the arms race had been too high, permitting a wide range of strategic buildup, and that it perpetuated Soviet advantages in strategic throw-weight and allowed such a large number of MIRVs that American land-based forces were likely to be vulnerable to attack.

There seems to be little doubt that this series of summit meetings improved the climate of relations. An imposing network of relations had by this time been established, and both sides exclaimed that detente was irreversible. Among other favorable indicators in addition to the substantive agreements concluded at the summits were the signing of the Four Power Berlin agreement, the opening of preliminary talks on European security in Helsinki and on MBFR in Vienna, and the signing of a treaty banning biological warfare weapons and calling for the destruction of stockpiles of any such weapons.



## 2. Obstacles to Detente

*a. Declining euphoria; rising skepticism*—Despite this imposing two-year record of detente, still formidable barriers remained that detracted from these achievements and indeed produced counterforces that reduced their impact on the course of Soviet-American relations. As a consequence, initial euphoria over detente had become clouded with skepticism by the end of 1974.

*b. Human rights-trade issue.*—In retrospect, growing skepticism of detente in the United States appeared to center on one main source; namely, the issue of basic human rights as it related to the principle of free emigration from and intellectual freedom in the U.S.S.R. This issue became linked with the expansion of trade as Congressional critics of detente attempted to use the Soviet desire for American trade and technology as leverage to expand human rights in the Soviet Union. In turn, the Soviets resented this course as interference in internal Soviet affairs.

Conclusion of a comprehensive commercial agreement on October 18, 1972 set the stage for the expansion of Soviet-American trade as the Soviets agreed to settle the long unresolved Lend Lease World War II debt of \$722 million in return for the U.S. extension of credits and most-favored-nation (MFN) status to the Soviet Union. As a result, commercial relations moved ahead rapidly during the next two years. (In 1973, trade between the United States and the Soviet Union totalled \$1.4 billion.)

But in August 1972, the Soviet Government had established a graduated exit fee up to \$25,000 for a person possessing an advanced degree from a Soviet university or institute who wished to emigrate. Ostensibly, the decree was designed to reclaim lost educational costs to the state caused by emigrating Soviet citizens. However, the West interpreted this action as a measure to discourage Jewish emigration to Israel.

The trade-human rights issue was joined when on October 4, 1972, Senator Henry M. Jackson (D-Wash.) introduced an amendment to the Trade Reform Act under the cosponsorship of 72 Senators. The amendment prohibited the extension of credits or MFN status to non-market (i.e., Communist) economies which restricted or taxed emigration by their citizens. A similar amendment was introduced in the House of Representatives by Rep. Charles A. Vanik (D-Ohio) and henceforth was termed, "the Jackson-Vanik amendment."

The human rights issue became further exacerbated (and locked into the trade question) when Soviet repression of intellectual dissenters, notably, Soviet physicist Andrey Sakarov and Nobel Prize winner Alexander Solzhenitsyn, was given widespread critical coverage in the Western media. On February 13, 1974, the Soviets expelled Solzhenitsyn, a repressive action that strengthened the mood in Congress and the press to reassess detente and its benefits.

Attempts to resolve the human rights-trade issue in September 1974 by Soviet assurances of relaxing emigration restrictions in return for a congressional grant of MFN and credits appeared to clear the air, but on December 18, 1974 the Soviets denied that they had agreed to any specific emigration measure in exchange for American trade concessions and declared that they would reject any American effort to interfere in internal Soviet affairs. This negative Soviet response fueled rising criticism on the value of trade and technology transfer

and reinforced the growing countertrend of skepticism within the Congress and among knowledgeable critics throughout the country. In brief, the value of detente itself was now being seriously questioned.

*c. Impact of Yom Kippur war and oil embargo.*—Other emerging issues were to have a spoiling effect on the prevailing euphoria over detente. The October 1973 war in the Middle East threatened to bring the Soviet Union and the United States into confrontation as the United States responded to Soviet hints of unilateral intervention with the declaration of a worldwide "alert" of American military forces. Soviet support of the Arab oil embargo (October 17, 1973–March 18, 1974) that threatened to cripple the economies of the West provided an additional irritant to relations. This new round in the Arab-Israeli conflict tested the limits of detente, according to qualified observers.

*d. Impasse on European security.*—Moreover, the conferences on European security (CSCE and MBFR) reached an impasse as both sides came to grips with the most fundamental issues of the Cold War. Soviet resistance to the free exchange of ideas, people, and information, and their insistence on preserving the substantial Soviet advantage in conventional forces in Central Europe created a seemingly immovable deadlock. Faced with these hard realities, supporters of detente were compelled to scale down their expectations.

*e. Other difficulties: SALT, growing Soviet power, Nixon's visit to China.*—Nor was SALT II productive, at first. Negotiators had failed to broaden categories of strategic weapons to be restricted and to replace the interim agreement on offensive weapons with a permanent one. American criticisms of SALT I as not benefiting the U.S. sufficiently, the continued buildup of Soviet military power, the successful testing of Soviet missiles with multiple independently targetable re-entry vehicles (MIRVs) in August 1973 and January 1974—all caused concern among American skeptics who were particularly fearful that the balance in missile strength would be upset. On the positive side, the "conceptual breakthrough" that Secretary of State Kissinger had failed to achieve in his March 1974 trip to Moscow (much to his disappointment) was apparently achieved at the Vladivostok summit in November. But even this agreement was not wholly satisfying to skeptics who questioned the value of "excessive" allowable limits for a continued strategic buildup.

Reports of an enlarging Soviet naval presence in the Indian Ocean and estimates of growing Soviet military power and the decline in that of NATO published by the prestigious Institute for Strategic Studies of London, moreover, appeared to re-inforce the position of skeptics of detente.

Finally, President Nixon's visit of reconciliation to China during February 21–28, 1972, three months before going to Moscow, could not have set well with the Soviet leaders, and in all probability stimulated further concern, if not fears, of an anti-Soviet collusion, and aroused further doubts among Soviet skeptics of detente.

### 3. *An Emerging Realism*

By the end of 1974, therefore, a vigorous skepticism appeared to dampen much of the earlier euphoria over detente. Negotiations were going forward on virtually every political front, but an awareness of progress seemed to be combined with a realization that while the Soviet Union and the United States had by then created a favorable atmosphere for relations, and indeed had established an impressive network



of agreements for strengthening a functional relationship (41 agreements were signed during 1972-1974), still they had yet to resolve the hard-core issues of the Cold War.

#### D. REACHING A PLATEAU, 1975

##### *1. Through the Spring of 1975*

For at least the first six months of 1975 detente in Soviet-American relations appeared to reach a plateau. Further advance in detente seemed to be arrested as both sides came to grips with outstanding, and formidable, issues in their relations.

SALT II negotiations continued along their steady but inconclusive course as negotiators attempted to resolve technical details arising from the Vladivostok agreement.

The Middle East crisis appeared to stabilize in a state of prolonged irresolution. Soviet military supplies to Arab forces were replenished, especially in the case of Syria; and extensive military aid was given to Libya, suggesting to analysts that the Soviets were seeking an alternative client state to Egypt which was then tilting toward the United States. Israeli forces, diminished by the Yom Kippur war, were also strengthened from American arsenals. At the diplomatic level the Soviets appeared to maintain a posture of detachment, keeping to the sidelines, while the United States took active unilateral diplomatic action (largely unsuccessful) to find a basis for compromise between Egypt and Israel.

Conferences on European security (CSCE and MBFR) had yet to achieve their goals, though press reports in mid-June spoke optimistically of a compromise at CSCE that would clear the way for a full-blown summit conference of leaders from all participating countries. (Differences had centered on the free exchange of peoples, ideas, and information East and West, and on such confidence-building measures as pre-notification of military maneuvers.)

Some of the cooperative agreements concluded at past summits were producing some positive results. Most notable perhaps was continued progress in the planned Soyuz-Apollo spaceflight scheduled for July 1975.

The most serious setback, not altogether unexpected, was the Soviet cancellation on January 14, 1975 of the 1972 trade agreement with the United States, including the Lend-Lease settlement. This action was taken in response to what were viewed as discriminatory provisions in the Trade Reform Bill, signed into law on January 3, 1975, linking MFN to liberalized Soviet emigration policies. Furthermore, the Soviets were reacting to the imposition of a \$300 million ceiling (hardly sufficient for Soviet expectations and plans) on credits to the Soviet Union in the Export-Import Bank amendment signed into law on January 4. In a parallel move, the Soviet press stepped up criticism of the United States, in sharp contrast to heretofore positive media treatment. On the other hand, Soviet officials emphasized their continuing commitment to detente.

A fairly realistic reading on the state of detente at this juncture—at least on the official level—was perhaps the public utterances by General Secretary Brezhnev and President Ford, and particularly by other officials in the wake of the collapse of American policy in Vietnam. In a speech in Budapest on March 18, Brezhnev reaffirmed

the Soviet commitment to improving relations with the United States, but cautioned that a slowdown in detente could jeopardize previous achievements. Similarly, on April 10, President Ford strongly endorsed detente in his "State-of-the-World" message; called for removal of existing trade and economic sanctions against the Soviet Union; but also warned that detente must be a two-way street and would not be allowed to become a "license to fish in troubled waters."

In the wake of the Vietnam debacle in April-May 1975, Secretary of State Kissinger reaffirmed on May 12 the United States commitment to detente but warned that the continued expansion of Soviet military power on a global scale constituted "a heavy mortgage on detente" and jeopardized new trends in Soviet-American relations. On its part the Soviets reacted with restraint during this period of severe setback for United States policy.

As for the attitude of the American people in the spring of 1975, one student of foreign policy, Richard Rosecrance, described opposition to detente in the United States "while diverse and inconsistent from one group to another—must be rated today as strong."<sup>2</sup>

## *2. Since the Summer of 1975*

By the summer of 1975, detente had clearly reached something of a plateau. Momentum appeared to stall as critics in the United States, stimulated in part by the visit of Solzhenitsyn, leveled sharp attacks on the Soviet failure to grant human rights, particularly with regard to Jewish emigration, and on alleged (but never officially confirmed by the U.S. Government) Soviet violations of the SALT I agreement. Failure to reach agreement in the SALT II and MBFR negotiations seemed to energize further skepticism in the country. The conclusion of the European Security Conference generated still further doubt and concern because of Soviet failure in the past to carry out humanitarian commitments similar to those contained in the Final Act and because the agreement had the effect, it was argued, of sealing the division of Europe and confirming the Soviet Union's World War II conquests in Eastern Europe. One of the few favorable developments at this time was the successful staging of the Apollo-Soyuz joint manned space mission.

By autumn the Soviets responded to what they perceived to be an accumulation of grievances against the United States. Among the grievances were: the Sinai accord between Egypt and Israel with the United States acting as mediator, reached without Soviet participation; remarks by Secretary of Defense James R. Schlesinger concerning U.S. readiness to resort to nuclear weapons as an alternative to defeat in war and his warnings against Soviet military advances, making him the Soviet Union's prime American target in denouncing opponents of detente; aggravation over the trade-emigration-human rights issue which the Soviets looked upon as intervention in their internal affairs; and the American lukewarm, even critical, response to the Helsinki agreement concluded as the Final Act of the CSCE, for Soviet leaders a long-sought goal and a prized accomplishment of Soviet foreign policy.

Binding issues of disagreement on both sides were the polarization of Western and Soviet supported interest in Portugal and failure to reach agreement on SALT II and MBFR.

<sup>2</sup> Rosecrance, Richard. *Detente or entente?* Foreign Affairs, April 1975: 469.



By the end of October, progress towards achieving military detente, the very heart of the concept of detente itself, seemed to reach a critical juncture. The decisive issue centered on SALT II and disagreement over the precise definition of strategic weapons, that is, whether or not the Soviet Backfire bomber and the American cruise missile should be counted as strategic weapons in calculations for an agreed strategic balance. In the event of failure to reach agreement it was speculated that the Brezhnev-Ford Washington summit, intended as a signing ceremony of a SALT II agreement, would be indefinitely postponed; that negotiations would then be put off until 1977; and that the issue of detente would be thrust into the political arena of both nations where powerful political forces are known to be contesting its merits: for the Soviet Union, the 25th Congress of the CPSU, scheduled to be held in February 1976, is expected to sanction or reject the continuation of Brezhnev's "peace program," depending largely on its demonstrated success or failure; and for the United States, detente is expected to be a major issue in the upcoming 1976 Presidential election. Under these conditions it was estimated that control of nuclear weapons could become an even more elusive goal as pressures mounting on each side for building a stronger defense, escalated the arms race to a new and more dangerous level, thus diminishing prospects for achieving a military detente. This scenario of possibilities led *The Christian Science Monitor* to state editorially on October 17, with respect to agreement in the area of military detente, that, "Time is of the essence."

Through November the momentum of detente appeared to remain fixed at the critical juncture noted in October. Deadlock in SALT II negotiations persisted over the decisive Backfire-cruise missile issue. Breaking the deadlock was an essential American condition for the long delayed, yet much anticipated Washington summit. Hints of a possible Brezhnev-Ford meeting in late December on the occasion of a Brezhnev visit to the Cuban Communist Party Congress were downgraded, though a Brezhnev-Kissinger meeting in Moscow was held out as a possibility. The dismissal of Secretary Schlesinger, regarded in Moscow as an opponent of detente, resolved the Kissinger-Schlesinger dispute within the Administration over conflicting perceptions of detente and policies to carry it out, but appeared to have no immediate and tangible effect upon the course of Soviet policy. Indeed, tensions in Soviet-American relations were revived as President Ford and Secretary Kissinger warned the Soviets that military intervention in the Angolan civil war was a threat to detente and reaffirmed the Administration's intention of maintaining an American defense posture second to none. Reports of alleged Soviet violations of SALT I, sharply contested by Kissinger, seemed to reflect the depth of anxiety over detente in certain sectors of American life. On their part, the Soviets, concerned about increased American criticism of detente since the CSCE meeting in Helsinki during mid-summer, reaffirmed their intention of maintaining a strong defense and warned against any erosion of vigilance; but they also pledged to make detente irreversible which they perceived to be a reality of international life. Despite tensions on the surface and continuing deadlock in SALT II, therefore, some positive signs were discernible in the flow of events through the end of November: both countries remained committed

to detente as official policy, and some slight movement was apparent towards a summit meeting.

As the year 1975 came to a close, it was becoming apparent that detente was being seriously tested in two vital areas of Soviet-American relations; namely, the military, and the political-ideological. With respect to the first, attempts to break the stalemate in SALT II by a Kissinger trip to Moscow were now deferred until January 1976. An effort was made to break the stalemate in MBFR by an American offer to reduce its 7,000 tactical nuclear weapons arsenal in Central Europe by 1,000 and American troops by 29,000, in exchange for withdrawal of a Soviet tank army of some 1,700 tanks and 68,000 men; but the formal Warsaw Pact response was not expected until early 1976. Thus considerations on military detente, still deadlocked, were further delayed and extended into the new year.

The most immediate, but less decisive, test of detente was, however, in the political-ideological area as the Soviet Union and the U.S. became more deeply involved in the Angolan civil war. All along the Soviets insisted that there could be no detente in ideology. And in its support for the MPLA faction the Soviet Union further insisted that detente did not mean an end to the national liberation movement and a cessation of the anti-imperialist struggle; it did not mean a freezing of the world into a socio-political status quo. Accordingly, the Soviet Union, acting on the apparent assumption that the United States would wish to avoid another Vietnam-type involvement, poured tons of military equipment and some four to six thousand Cuban troops into Angola. The Soviet Union denied the relevance of their extensive support for the MPLA to the pursuit of detente with the United States; both were separate, disconnected areas of Soviet political concern. The Soviets pleaded no contradiction in both policies.

The United States (at least the Ford Administration) took the contrary position: it linked the future of detente in Soviet-American relations with Soviet policy and behavior in Angola. The Soviets were warned that continued military involvement in Angola would endanger detente. The United States response to this new Soviet challenge to American policy was explained in terms of Kissinger's search for a balance in world diplomacy and the use of a two-track system to achieve detente with the Soviet Union. This interacting system sought harmony in relations through accommodation on the one hand as in SALT and expanding trade relations and international exchanges, and by a firm determination to check Soviet global power and influence now perceived to be entering a new imperial phase on the other. The larger purpose was to seek a world in balance using counterweights of power, China and Japan being power potentials for future alignments. Senate opposition to further covert U.S. military aid to non-Soviet supported factions fighting in Angola, based on fear of another involvement as in Vietnam and denial of a direct American interest, appeared to thwart Administration policy momentarily. Still, the Administration, pledging non-involvement of American troops, insisted on mounting a "major effort" in Angola.

At the close of 1975, therefore, serious difficulties and dilemmas in detente appeared to surface: continued stalemate in SALT II/MBFR negotiations suggested the extraordinary difficulties inherent in seeking military detente; the threat of a Soviet-American confrontation in



Angola exposed both the dilemma and frailty of a concept that was perceived from differing and essentially contradictory positions. At stake was the future of detente.<sup>3</sup>

#### E. DETENTE: DEFINITIONS AND PERCEPTIONS; CAUSES AND MOTIVATIONS

This overview of Soviet-American relations during 1971-1975 raises basic questions about definitions and perceptions, causes and motivations of detente. The Soviet definition of detente (or as they prefer, peaceful coexistence) suggests two principal points in common with those of the American definition; namely, recognition that detente is both a process and a condition of relations—the condition being a relaxation of tensions and an exercise of mutual restraint. The essential point of difference is Soviet insistence that there can be no peaceful coexistence or detente in the ideological realm. Reconciliation of the antithetical doctrines of Communism and capitalism is not possible. This reality, they assert, is dictated by historical necessity.

Americans and the Soviets thus view detente from different perspectives, but the areas of agreement nonetheless appear to be considerable. Foreign policy leaders in both governments recognize their fundamental ideological and political differences; they accept the vital and dynamic role of power in their relations; they realize the inevitability of rivalry; they understand the limits of detente. To them, detente does not mean agreement on values; it is not a state of rapprochement, much less of entente. It is rather a process and a condition of relations that issue from a mutual willingness to avoid nuclear war.

Apparently sharing in common a desire to create a framework of relations, the Soviet Union and the United States seek to establish through functional diplomacy reasonable stability within the context of a larger international system, one presumably based on the principle of interdependence. At the heart of the detente process is a mutual denial of force in resolving differences. The assumption seems to be that the modalities and the process of detente can enable both nations to manage their differences while at the same time protect their vital interests and maintain peace.

Still, profound ideological differences, noted above, exist in Soviet and American perceptions of detente that in both theoretical and practical terms are formidable and accordingly cast a shadow of negativism over detente. The Soviet Union is committed to continuing "struggle"; it rejects ideologically a permanent state of peace with capitalism and appears only to have modified its ideological views sufficiently to reach a momentary accommodation with the United States, a modification on the periphery, not at the central core of doctrine. The Soviets remain committed to achieving the goals of Communism. They remain committed to the conquest of power (e.g. support for local wars and wars of "national liberation") through the use of power in situations that could invite confrontation and accordingly generate serious consequences. In brief, the relationship remains adversarial; the Soviets are trying to have it both ways: to have peaceful competition with the United States and draw upon its economic and technological resources, while at the same time actively supporting

<sup>3</sup> Whelan, Joseph G. *Detente with the Soviet Union*. Issue Brief number IB 74120. Washington, Library of Congress, Congressional Research Service, Jan. 2, 1976, p. 3-5.

the transformation of the world into a pattern acceptable to their own unique beliefs and preferences. The problem arises when what is in reality revolutionary theory is applied to practical politics and generated into action through the use of power.

In contrast, the American outlook inclines toward composing differences through peaceful means; it rejects "struggle" as a continuum in relations; and generally it seeks a harmony of interests among its adversaries.

Multiple causes brought about detente in Soviet-American relations, and these causes are rooted in a convergence of national interests. Detente in the political/military area issued from the imperatives of peace in the nuclear age, a mutual desire for security, and a common negotiating condition of strategic parity. Stalemate in Europe, changing American attitudes towards its responsibilities in Europe, and the impact of the Sino-Soviet dispute created unique opportunities and requirements for each side to achieve its respective interests. Failures of past policies (United States in Vietnam; Soviet failures arising from Khrushchev's excessive globalism) provided still another mutual interest in the pursuit of their respective foreign policies. Finally, Soviet needs and deficiencies in economics, science, and technology, in combination with proven American capabilities and a desire to serve other political purposes, created special forces of mutual attraction. In all, the causes of detente did not issue from any one-sided source or from one single source, but rather from a condition created by the chemistry of mutual interests.

#### F. DETENTE: FUTURE PROSPECTS IN AN EMERGING INTERDEPENDENT WORLD

##### 1. *Obstacles to Detente*

Considerable obstacles lay in the path to the success of detente. Among them are the following:

(1) fundamental ideological incompatibility between the American and Soviet systems, combined with continued Soviet emphasis on ideological struggle between those systems; (2) continuing rivalries between the two superpowers in areas of overlapping strategic interest around the globe, particularly what critics of detente perceive to be the expansion of Soviet military power and the decline in that of NATO; and (3) the suspicions, doubts, and fears arising from a shared historical memory of over two decades of Cold War.

##### 2. *Favorable Factors*

On the other hand, major factors encourage efforts to continue the process of detente: (1) threat of thermonuclear war and recognition by leaders of both countries that every effort must be made to prevent its occurrence; (2) the common danger of nuclear proliferation which can only be reduced through great power cooperation; (3) the Soviet need for Western technology which can be obtainable only in an environment of reduced East-West tensions; (4) the continuing Sino-Soviet dispute, coupled with improved relations between China and the United States; and (5) the growing interdependency among the nations of the world, regardless of social systems, in the face of pressing global problems.



### 3. *On Balance*

Detente continues to be severely tested in many areas of Soviet-American relations as noted above. The initial euphoria over the new Soviet relationship now seems to have evaporated and a sense of realism appears to prevail. Certainly the American people, and particularly the Congress, remain hopeful but skeptical. Dangerous tensions arising from deep rooted Soviet-American rivalry seem destined to continue as a natural phenomenon in the relationship of great powers whose interests and goals remain fundamentally conflictual. Nonetheless, both Governments still appear to be currently committed to detente as a state policy. If their relations continue to be characterized by a self-imposed restraint and a genuine desire to reduce tensions, then the prospects for the future may be greater than what now seems possible.

### 4. *Detente in Emerging World of Interdependence*

Beyond the specific problem of crisis management in Soviet-American relations lies the much larger phenomena of interdependence. This is the term used by foreign specialists and statesmen to describe what they perceive to be a new cycle of change in international politics. Looked upon as the conceptualization of the world in transition, it is presented as a workable rationale for continuity in a time of change. The idea, not new—long ago John Donne expressed it in the phrase, "No man is an island"—seems to have been given currency and momentum by the rising expectations of detente; the emergence of the LDCs, especially those resource rich, as a serious power factor in international relations; and by the global nature of today's problems (e.g., environmental pollution, scarcity of resources—energy and food—arms control, equitable use of the oceans and seabeds, to name some of the most important). The universal appeal of interdependence arises from the fact that it purports to offer a route for common survival.

Described as a modern Copernican revolution and a fallout of the Space Age, the idea of interdependence views man's Earth from space, and perceiving his problems in totality, advocates solutions through imperatives of cooperation dictated by the sharing of a common fate. Barbara Ward expressed the idea in terms of "Spaceship Earth", a closed ecological system of nations bound to a common destiny in space in which interdependence is the key to survival. Rev. Theodore M. Hesburgh, President of Notre Dame University, told Britain's Ditchley Park conference in September 1974 that interdependence is an idea whose time has come.<sup>4</sup> U.N. Secretary General Kurt Waldheim, addressing the Chicago Council on Foreign Relations on April 23, 1975, reinforced this view when he said: "Only through the interdependence of all nations can the independence of each nation be assured." Secretary of State Kissinger perceives interdependence as a unique conceptualization of an emerging international system.<sup>5</sup>

<sup>4</sup> Hesburgh, Theodore M., C.S.C. The problems and opportunities on a very interdependent planet. Ditchley Foundation Lecture, Sept. 20, 1974. In, Congressional Record, May 8, 1975: S. 7730-S. 7736. (Daily edition).

<sup>5</sup> Text inserted in, Congressional Record, May 12, 1975: S7841 (Daily edition). The growing awareness of the imperatives of interdependence has been recently manifested in international conferences of Western leaders. In an address to a ministerial meeting of the International Energy Agency in Paris on May 27, 1975, Secretary of State Kissinger quoted Goethe as saying that "the web of this world is woven of necessity and change." And he added: "We stand at a point where those strands intertwine. We must not regard necessity as capricious nor leave change to chance. Necessity impels us to where we are but summons us to choose where we go. Our interdependence will make us thrive together or decline together. We can drift, or we can decide. We have no excuse for failure." (The New York Times, May 29, 1975, p. 19.)

In practical terms interdependence requires renewed emphasis on functional diplomacy, a type of conduct in international relations that places a high premium on international cooperation. The assumption of its advocates is that through the cooperative interaction of nations, international relations will become infused with a moderating and harmonizing spirit. Solutions to common problems can issue from this new spirit, it is argued; peace and security for all may be achieved. The binding force of this new functionalism, unlike at other times, is the common desire to survive. Mankind has no other choice, it is said; interdependence offers a route for common survival.

The test of interdependence, if that is indeed the emerging pattern of international relations in the mid-1970s, would seem to lie in the extent to which the great and lesser nations of the world can perceive the full implications of the "Spaceship Earth" concept and accordingly modify their national interests to accommodate the needs of the whole. Interdependence would seem to ask a great deal of peoples and nation-states, requiring a cosmic overview of world affairs and a kind of conduct in foreign affairs and perception of national interests that transcends generations, even centuries, of deeply engrained habits and traditions. As Hesburgh put it, "Interdependence is a thought and theme that runs counter to many of our shibboleths of the past; nationalism, ethnocentrism, rugged individualism, empire, cold war, East and West with never the twain meeting, declarations of independence."<sup>6</sup> Yet, the alternative to this option may be far less appealing and more difficult to accept than what at first may seem apparent.

Thus, if interdependence is indeed the essence of the current changing cycle of international relations as some observers claim, then the present stage of detente in Soviet-American relations may well be a supreme test in microcosm of its viability. For at this juncture there seems little doubt that detente has had a profound effect on the modalities of Soviet-American relations: it has created an environment of measured tolerance and a mutually acceptable form of coexistence to a degree seemingly never before achieved; it has permitted the art of diplomacy, a recognized mark of progress in civilization, to function as seldom before in search of a more genuine harmony of interests. Yet, detente carries no built-in guarantee of an enduring peace because the essential differences, touching the vital political, power, and ideological interests of both nations, remain intact. In the final analysis, therefore, judgments on the value and viability of detente would seem to derive from an appraisal that balances goals and expectations realistically with the hard realities of limited achievements, mutual interests, and enduring differences.

## II. SOVIET POLITICAL USES OF SPACE

### A. COMPARATIVE YEARS 1971 AND 1975

The above survey and analysis of Soviet-American relations suggest a great disparity in the modalities and realities of relations during the years 1971 and 1975. In retrospect, 1971 appeared to be a time of transition from Cold War to detente. Relations were tense; progress towards easing tensions was slow; expectations for improvement were

<sup>6</sup> Hesburgh, *op cit.*, p. S7727.

modest. In contrast, relations in 1975 seem to have improved remarkably. Though expectations of detente may now have diminished somewhat from the heightened euphoria of 1974, still its forward momentum has not completely stalled. Nevertheless, detente appears to have reached something of a plateau, a decisive point perhaps where only time can tell whether its promise can become a reality.

Because 1971 and 1975 contrast so markedly, this analysis of Soviet political uses of space is placed within the context of this dual timeframe—at least the first seven months of each year. The resulting examination of core-samples within this timeframe may reveal certain persisting and differing characteristics of Soviet political behavior regarding space activities within contrasting environments of tension and detente.

## B. IN AN ENVIRONMENT OF TENSION, JANUARY–JULY 1971

### 1. *Vietnam: Catalyst of Tension*

Vietnam catalyzed increased tension in Soviet-American relations. Reduction of American troop involvement from 530,000 at the beginning of 1969 to less than 140,000 by the end of 1971 was somewhat compensated by escalation of the air war in Vietnam, Laos, and Cambodia beginning early in 1971 and continuing through the months under review. The Soviets were silent on troop reductions, but they vigorously denounced intensified American bombings and the expansion of the war into Laos and Cambodia.

The Soviet media and official pronouncements took on much of the flavor and coloration of the Cold War during this period. A Tass pronouncement of February 3 (published against the background of the successful Apollo 14 launching on January 31), “strongly” denounced “the armed intrusion of the United States and Saigon puppets into Laos,” charging that “the United States ruling circles” were “completely responsible for aggravation of the situation in Laos and entire Indochina.” According to the Soviets, the “spreading of the flames of war to the territory of Laos by the United States and its puppets is an act of aggression, a new open violation of the United Nations Charter, gross flouting of the principles of the international law.” Accusing the United States of further violations of the Geneva agreements, the Soviet announcement stated that “these actions show again how brazenly the U.S. administration flouts sovereignty, and independence of other states, how easily it breaks the United States commitments under international treaties and agreements \* \* \*.”<sup>7</sup>

On February 10, Viktor Mayevskiy charged in *Pravda* that the invasion of Laos “by U.S. military and Saigon puppets” was a “shameless trampling under foot of international law.”<sup>8</sup> A *Red Star* editorial on the 7th of February (corresponding in time roughly with the Moonwalk by the Apollo 14 astronauts), accused the U.S. “imperialists” of “striving for the umpteenth time to change the situation in that area to their advantage” and as a consequence were fanning “the conflagration of the criminal and dirty war.” Reiterating other charges of treaty violations and violations of international law, the editorial stated, “It is obvious that international law and agreements, even

<sup>7</sup> Moscow, Tass International Service, February 3, 1971. By and large the translated material used in this chapter is taken from the Daily Reports for the Soviet Union and Eastern Europe published by the Foreign Broadcast Information Service.

<sup>8</sup> Moscow, Tass International Service, Feb. 10, 1971.



logical conclusions, do not play a determining role in Washington's current policy." "Forces which follow the law of the jungle and the law of the big stick in their actions in the international arena," *Red Star* declared, "are coming more and more to the surface in the U.S. capital." The editorial concluded: "The Soviet people and all other peace-loving peoples brand with shame the bloody crimes of U.S. aggressors. The conscience and logic of all mankind demand an end to the imperialist banditry in Indochina."<sup>9</sup>

When civil disturbances erupted in Washington in the spring of 1971 as a result of expanding U.S. involvement in Southeast Asia—a time coinciding with the launching of *Salyut* on April 19 and *Soyuz* 10 on April 23, the Soviets appeared to quicken and sharpen their political attacks on the United States. A report in *Pravda* on May 5 by Boris Strel'nikov entitled, "A Bloody Battle in the U.S. Capital," recounted the events of "the day of the mass disobedience" in Washington.<sup>10</sup> A few days later V. Matveyev reviewed in *Izvestiya* the three weeks of antiwar demonstrations in which "the U.S. military and police apparatus have been in a state of full mobilization" and were "waging military operations" against college and university students, housewives, Negroes, and government employees. "The initiators of the 'dirty war' against the peace-loving Vietnamese people," he wrote, "had to be convinced both of the futility of their estimates for the desired outcome of the intervention in Vietnam and of the futility of their hopes of 'appeasing' Americans in the face of the Pentagon's bloody adventure." According to Matveyev, the mass anti-war movement erupted because American intervention in Southeast Asia had reached a "dead end." Protests against the war were "the result of its people's courageous struggle against the aggressors."<sup>11</sup>

Other officially sponsored media coverage gave renewed emphasis to alleged American atrocities in Vietnam and re-iterated other familiar themes in their vigorous protests against U.S. involvement in Vietnam. Thus expansion of the war in Southeast Asia revived the Cold War spirit in Moscow and generated renewed Soviet political attacks on the United States. Within this general milieu of aggravated tension, the Soviet Union structured its political response to both its space activities and those of the United States.

## 2. Downgrading American Space Effort

a. *Conflicting appraisals of Apollo 14 mission.*—The Apollo 14 mission (January 31–February 9, 1971) was barely over when American space scientists and engineers began to describe it as a turning point in lunar exploration: a period of testing and reconnaissance had now ended, it was said, and a wide-ranging and methodical campaign of discovery had begun.<sup>12</sup> No such elevated appraisal came from Moscow; the emphasis there was on downgrading the Apollo 14 mission and upgrading by comparison the value of the Soviet automatic lunar explorer, *Lunokhod* 1, then probing the lunar surface. Thus, the Soviets reverted to one of their traditional themes in exploiting space exploration for political purposes; namely, to denigrate the American space effort.

<sup>9</sup> End the U.S. Aggression in Indochina. *Red Star*, Moscow, Feb. 7, 1971: 1A (Editorial).

<sup>10</sup> *Pravda*, Moscow, May 5, 1971: 5.

<sup>11</sup> Matveyev, V. Do Not Throw Your Conscience Behind Bars. *Izvestiya*, Moscow, May 11, 1971: 2.

<sup>12</sup> The New York Times, Feb. 14, 1971: E6.



*b. Limited Soviet media coverage of Apollo 14.*—In contrast to the Apollo 11, 12 and 13 missions, Apollo 14 received minimal coverage in the Soviet news media. (Even coverage of those earlier missions was small in comparison with that given in other countries.) In the evening of February 5 Soviet television viewers got only a brief two-minute look at astronauts Commander Edgar D. Mitchell and Captain Alan B. Shepard Jr. as they walked on the Moon. This report was juxtaposed with a six-minute condemnation of the "American and South Vietnamese puppet invasion" of Laos, complete with films showing anti-war protest demonstrations in the United States and reported shots of the invasion force in action. As the commentator talked about the Laotian invasion, what appeared to be old news-reel footage of American paratroops floating through the air was shown, suggesting to viewers that paratroops were jumping into Laos. Only the barest facts, with straight forward commentary, were given in the Apollo 14 coverage. Moreover, the Soviets did not inform the Russian people about the mission until the actual launching. Some advance press notice, though insignificant in size, had usually been given on previous missions.<sup>13</sup> Publicity in the press was also severely restricted to a few brief articles.<sup>14</sup>

In an apparent effort to counteract the impact of Apollo 14, the Soviets gave expanded media coverage to Lunokhod 1. In fact during the three-month period January through March 1971, Lunokhod 1 was given high visibility treatment in the Soviet media. In the evening of February 5, Tass provided more space to Lunokhod 1, then in its 80th day of exploring the lunar surface, than to the Apollo astronauts' walk on the Moon. In general, such media coverage stressed the greater scientific value of Soviet unmanned lunar flights such as Luna 16 and tended to downgrade that of Apollo 14.<sup>15</sup>

Thus at the outset the impact of the Apollo 14 mission on Soviet citizens was effectively minimized and the continuing achievements of Lunokhod 1 maximized. Unfavorable comparisons in their minds between Soviet and American lunar accomplishments, objectively so one-sided in the American favor, could, therefore, be avoided.<sup>16</sup>

*c. Shortcomings of Apollo; greater value of Lunokhod.*—To insure that the Soviet people perceived "correctly" the comparative value of the Lunokhod mission over that of Apollo 14, the Soviet media took great pains—the American press spoke of an "obvious attempt"—to emphasize what it judged to be the shortcomings of the Apollo manned spacecraft approach as compared with that of the successful instrumented Lunokhod.<sup>17</sup> Soviet reports on the Apollo 14 mission, therefore, tended to accent its negative aspects.

<sup>13</sup> Gwertzman, Bernard. Soviet 'muffles' Apollo 14's feat. The New York Times, Feb. 6, 1971:14. Only a brief factual statement was given by Tass on the lift-off and landing on the Moon. (Moscow, Tass International Service, Jan. 31, 1971, Feb. 1, and Feb. 5, 1971.) Apparently, coverage in Eastern Europe was uneven. The Bulgarians reported the spaceflight but in the context of comparing it with Lunokhod 1 and then citing the advantages of the Soviet craft. (Sofia, Domestic Service, Feb. 5, 1971.) The Czechs carried one seemingly objective and sympathetic report describing the activities of the astronauts on the Moon. It concluded: "Although a few unplanned problems arose during the flight—problems which after all can always arise during such complex projects—the Apollo 14 flight was probably the most successful of the flights of this kind thus far." (The nine-day flight had ended. Zemedelske Noviny, Prague, Feb. 10, 1971:2.) Polish television provided hundreds of thousands of viewers in Warsaw with live coverage on Feb. 5 of the first portion of the Moon walk. (The New York Times, Feb. 6, 1971:14.)

<sup>14</sup> The New York Times, Feb. 10, 1971: 24.

<sup>15</sup> The New York Times, Feb. 10, 1971:14.

<sup>16</sup> Bernard Gwertzman, Moscow correspondent of The New York Times, reported that the "skimpy coverage" of the Apollo 14 mission "has been disappointing" to the Russians since many have developed some expertise on space matters through the years. However, Soviet citizens with American friends seemed aware of the mission and sought information on whether the lunar module had successfully landed. When told that it had, Gwertzman reported, the usual reaction was the Russian word, "molotsky," roughly meaning, "Good going, boys." (The New York Times, Feb. 7, 1971:14.)

<sup>17</sup> The New York Times, Feb. 10, 1971:24.

*Pravda's* Washington correspondent Boris Strel'nikov stressed in a report broadcast to the Soviet people the fatigue experienced by the astronauts. Some American scientific observers, he also noted, did not conceal their disappointment that the astronauts failed in carrying out one of the basic tasks of the program; namely, to climb the ridge of Cone Crater and take specimens. Strel'nikov did not blame them: they did "all that was humanly possible. Alas, lunar conditions proved poorly suited to the activity of man".<sup>18</sup>

At the outset *Izvestiya* was sharply critical of Apollo 14, claiming that a cane presented to Astronaut Shepard before lift-off had become "symbolic" of the whole mission. *Izvestiya* correspondent Melor Stursa reported from New York: "The difficulties aboard the Apollo 14 spacecraft, coming just after the Apollo 13 failure, could have an effect on the U.S. space program, local observers feel. Even without this, the program is under heavy fire from critics." Stursa went on to discuss Apollo's docking difficulties. Moscow observers detected a "distinct negative tone" in the Stursa report.<sup>19</sup>

In general, the Soviet press seemed anxious to capitalize on the success of unmanned probes such as the Lunokhod 1 Moon rover and to cast doubt on the necessity of manned spaceflights like Apollo. The cost factor was a special point of emphasis. The Chief Designer hailed the perfect performance of Lunokhod 1—not one of its numerous instruments, mechanisms and assemblies had broken down, he said—and comparing it with Apollo 14 gave this critical appraisal: "These flights, without doubt, will go down in the history of space exploration. But huge sums have been spent on the preparation of such expeditions, whereas most of the tasks facing them could be solved by automats." <sup>20</sup>

But more important, in the Soviet view, Apollo exposed man unnecessarily to great personal danger which was not the case with instrumented spacecraft. Boris Yegorov, a cosmonaut and physician who flew with Komarov in October 1964, asserted that the Apollo expeditions were "extremely complex and very dangerous." He cited the unpredictability of solar eruptions and the inability of return once into or beyond the atmosphere and the Earth's gravitational field. "Thus the danger of radiation infection exists," he said, adding, "In our opinion this is a risk and an unwarranted one." He also emphasized the danger that man, once on the Moon, could not be rescued if trouble occurred. While Yegorov did not foreclose the option of manned spaceflight, still he strongly emphasized the value of the Soviet use of instrumented and Earth orbital flights.<sup>21</sup>

<sup>18</sup> Moscow Domestic Service, Feb. 8, 1971.

<sup>19</sup> The Washington Post, Feb. 2, 1971: A6.

<sup>20</sup> Moscow, Tass International Service, Feb. 6, 1971.

<sup>21</sup> An interview over Budapest radio, Budapest Domestic Service, April 6, 1971. Similar themes were emphasized in the Czechoslovak press. A dispatch from Moscow by A. Ban was entitled: "From the pages of the Soviet press: An Unequivocal Victory of the Ideas of Soviet Science: The American Astronauts Have Returned Safe and Sound—But It Was a Close Shave; Lunokhod 1 Successfully Continues to Investigate the Moon; Automatic Devices a Great Achievement." Ban reiterated the argument of Soviet scientists that "the Soviet automatic space laboratories, and particularly Lunokhod 1 and Venera 7, have demonstrated that the automatic devices presently created by man achieve more than man does under conditions which are unsuitable for him and dangerous to his life." Ban cited Soviet press coverage of the Apollo 14 mission, noting that it came close to ending in technical failure "and might have exacted human lives." Ban asked: "Well, is it worth while to risk human life,—that unique, unrepeatable and irreplaceable thing in nature—when automatic devices can now do far more than man, when they work more precisely, are practically unlimited regarding the extent of research and, in addition, are also durable? From the scientific point of view the reply is clear, and this is now being confirmed by an increasing number of American scientists as well. Obviously, the propaganda interests under capitalism are stronger than the scientists' views." In comparing Apollo and Lunokhod, Ban concludes: "If one compares the results of the Soviet automatic station with what the American astronauts have achieved, one sees unequivocal proof of the victory of the ideas of Soviet science in space research." (*Pravda*, Bratislava, Feb. 10, 1971: 5A.)



On the occasion of the Apollo 14 flight and in subsequent weeks the Soviet people were assured that the chosen way of Luna and Lunokhod was superior to that of Apollo. Soviet scientists gave published testimony to this fact, as in the case of Professor B. Rodionov who concluded a technical analysis of the Lunokhod mission: "The 6 months of Lunokhod's active existence and the total success of its mission are an outstanding achievement of Soviet science and technology. It testifies that self-propelled automatic apparatuses have a great future in researching the planets of the solar system."<sup>22</sup>

*d. American militarization of space: A missing theme*—Apparently absent from the arsenal of Soviet political themes designed to downgrade the American space effort is the charge, consistently made in the past, that the United States uses space for military purposes while their programs are used only for peaceful purposes. Perhaps the omission can be explained by the progress in military space technology apparent to observers following openly publicized American space activities. Reasoning by analogy effectively disarms the Soviet propaganda thrust of innocence in adapting space technology to military requirements.

Soviet military space programs are discussed in Chapter Six of Volume I of this study. Suffice it to say here that the Soviets have extensive military space programs. As in the case of the United States it is estimated that perhaps three-fifths of Soviet spaceflights have a military emphasis. While secrecy shrouds information on the allocation of space funds for civilian programs, still, as Dr. Charles Sheldon II, has written, "... a very considerable number of their flights and research give telltale indications of serving military purposes."<sup>23</sup> (NASA allocates about two-thirds of U.S. space funds to expensive, ambitious, and developmental-oriented civilian programs.)<sup>24</sup> It is known, for example, that three single inspector/destructor satellites were flown in 1971, affirming the suspicion that the Soviets have created a capability to inspect and destroy satellites.<sup>25</sup> Also the flight of the Soviet orbital space station Salyut 1 in 1971 aroused concern for its military applications. As *The New York Times* said in an editorial, correlating the political implications of the U-2 with Salyut, "... uneasiness must grow as political leaders in many countries contemplate the potential military uses of large semipermanent manned space stations such as Salyut."<sup>26</sup> Finally, the inclusion of verification procedures in the SALT I agreement of May 1972 calling for "national technical means" meant an official and public Soviet admission in an international agreement of the use of so-called "spy satellites."<sup>27</sup>

<sup>22</sup> Rodionov, B. A laboratory on wheels. Pravda, Moscow, May 25, 1971: 3. Rodionov concluded a *Pravda* article of April 19, 1971 entitled, "An automatic topographer at work": "The Lunokhod-1 points to a new direction—the creation of automatic, remote control apparatuses for terrestrial topographic surveys. The time will come when such apparatuses will become a reality. Achievements in space will find applications on earth." (Pravda, Moscow, April 19, 1971: 4)

<sup>23</sup> Sheldon, Charles S. II. United States and Soviet progress in space: summary data through 1974 and a forward look. Washington, Library of Congress, Congressional Research Service, Jan. 13, 1975, p. 38. (Multitih: 75-18 SP.)

<sup>24</sup> Ibid.

<sup>25</sup> Ibid., p. 44. For further commentary on the development of the Soviet anti-satellite system, see George C. Wilson, Soviet space shots indicate progress toward satellite interceptor system. The Washington Post, April 3, 1971: A1.

<sup>26</sup> Soviet space station. (Editorial) The New York Times, June 9, 1971: 42. Sheldon designates Salyut 1 and Salyut 4, launched Dec. 26, 1974, as being in the civilian program; the military program to date has included Salyut 2 and Salyut 3, launched June 24, 1974. (Sheldon, op. cit., p. 11.)

<sup>27</sup> Article XII, Paragraph 1 of the Treaty on ABM's states: "For the purpose of providing assurance of compliance with the provisions of this treaty, each party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law." Paragraph 2 states: "Each party undertakes not to interfere with national technical means of verification of the other party operating in accordance with Paragraph 1 of this article." Identical assurances are given in Article V, Paragraphs 1 and 2 of the Interim Agreement on ICBM's. (Texts in, The New York Times, May 27, 1972: 8.)

In the light of such readily perceived developments in military space technology, therefore, it would have had little effect (if it ever did) for the Soviets to continue accusing the United States of "militarizing space" while covering their own programs with a cloak of innocence.

### 3. *Magnifying Soviet Space Achievements*

*a. Underlying purpose.*—In counterpoint to the political thrust of downgrading American space efforts, the Soviets magnified their own space achievements, often in disproportion to reality. The underlying purpose was to maintain and increase the prestige of the Soviet Union in the eyes of the world.<sup>28</sup>

Prestige, though an elusive political concept, is nevertheless an important power factor in international relations. It is directly correlated with the influence that a state can exercise within an international political system. In brief, prestige is a reputation for power, and power defines the parameters of pressure and determines the measure of success or failure in seeking political goals.

Conscious of the prestige value of space exploration, the Soviets have used it since the beginning of the Space Age to magnify the image and reality of Soviet power. Accordingly, they stressed those characteristics of their space activities that were calculated to achieve this purpose; namely, perfectability in their own programs, dedication to peace and the general welfare of mankind, denial (at least overtly) of being in a space race with the United States, and a perception of future plans that reflected a smooth-running space program conceived within a logical progression of building upon successive achievements.<sup>29</sup>

*b. Stress on perfectability.*—Perfectability is an achieved goal if Soviet statements on their space program are to be believed. Orderly, well-planned, scientifically and technologically sound, no risk to human life, in short, perfection—these are the characteristics conveyed. Very seldom is error admitted, except perhaps when a space accident occurs, as in the case of Soyuz 11, that cannot be concealed from the monitors and trackers in the West.

Secrecy shrouds the Soviet space program.<sup>30</sup> Preflight statements are not a Soviet practice, and those made in the course of a flight contain only the barest details. Outright failures, serious or minor short-

<sup>28</sup> The matter of prestige was discussed at length by the writer in the previous studies on the Soviet space programs. See, U.S. Congress, Senate, Committee on Aeronautical and Space Sciences, Soviet space programs, 1962-65; goals and purposes, achievements, plans, and international implications, 89th Congress, 2d session, Washington, U.S. Govt. Print. Off., 1966, chapter II, p. 32-42. (Hereafter cited as, Senate Space Committee, Soviet space programs, 1962-1965.) See also, U.S. Congress, Senate, Committee on Aeronautical and Space Sciences, Soviet space programs, 1966-70: goals and purposes, organization, resources, facilities and hardware, manned and unmanned flight programs, bioastronautics, civil and military applications, projections of future plans, attitudes toward international cooperation and space law, 92d Congress, 1st session, Washington, U.S. Govt. Print. Off., 1971, chapter I, p. 23-26. (Hereafter cited as, Senate Space Committee, Soviet space programs, 1966-70.)

<sup>29</sup> Walter Sullivan, science writer for *The New York Times*, interpreted the death of the three cosmonauts in Soyuz 11 in the context of prestige. He wrote: "The Soyuz-11 tragedy is also a blow to the Soviet hopes of recouping some of the national prestige lost to the American Apollo missions. However, the Russians have two unmanned space probes en route to Mars and their five-ton weight suggests that they are probably carrying a system for landing on that planet late this year, if there is television equipment on board, this could provide mankind with the first view from the surface of another planet." (Sullivan, Walter, Tragedy: when the hatch was opened, the men were dead. *The New York Times*, July 4, 1971: E6.)

<sup>30</sup> The extent to which secrecy envelops the Soviet space program is evident by the fact that little is known about its organizational pattern; with few exceptions the names of leading space officials are kept secret; the exact name of the space organization is unknown; and the number of people employed in space work has never been disclosed (it is estimated to be close to 600,000). (Sheldon, op. cit., p. 20 and 39.) One of the most protected secrets is the identity of the Chief Designer of Spaceships. From indirect evidence he was believed to be Mikhail K. Yangel, a 59-year old engineer who is a member of the Academy of Sciences. Yangel succeeded Sergei P. Korolev, who was publicly identified as Chief Designer only at the time of his death in January 1966. (Shabad, Theodore. New Soviet manned orbital flight seen. *The New York Times*, March 15, 1971: 17.)



comings can thus be concealed. Explanation, and thus exposure, can be avoided. The usual claim that all mission objectives have been accomplished may, therefore, not be true, but in the absence of a pre-flight statement that ordinarily would cite those objectives and provide criteria for measurement, it would be difficult to disprove the claim.<sup>31</sup>

Claims of perfection in Soviet space activities was a dominant theme in the period under review, even in instances where shortcomings were evident. On April 23, 1971, Soyuz 10 was launched with a three-man crew to rendezvous and dock with Salyut 1.<sup>32</sup>

The flight was, however, terminated after 5.5 hours. Upon landing at Karaganda and being welcomed by the First Secretary of the Karaganda Obkom, Akulintsev, Col. Vladimir Shatalov, commander of the flight, said in a statement: "The flight was not a lengthy one," but in terms of the amount of work and magnitude of the tasks to be performed, "the flight was a big, complex and intense flight with great tasks. Now it can be said that the Soviet Union's research in the field of opening up space is continuing and we are continuing to travel along the road toward the creation of orbital research stations." Shatalov concluded: "We, the crew, are satisfied with the work. We are fully, satisfied with all that we were given to do and with the results we, strictly speaking, brought back to earth. . . ." <sup>33</sup>

At a press conference, Shatalov described the docking procedures, remarking that "All apparatus and instruments functioned normally." <sup>34</sup> Test Engineer Nikolay Rukavishnikov, another crewman, stated: "I was amazed by the irreproachable accuracy with which the automatic systems carried out our commands or the ground commands." <sup>35</sup> Flight Engineer Alexey Yeliseyev commented on the significance of docking spacecraft with orbital stations, indicating, like the others, no difficulties but rather citing this activity as "a matter for the future." "Practice shows", he went on, "that the creation of such stations is one of the general directions of contemporary cosmonautics." Other Soviet space officials praised the flight, noting particularly its successful accomplishment and its significance in developing orbital stations.<sup>36</sup>

American space specialists were far less enthusiastic than the Soviets about the putative success of the Soyuz 10 mission. Some space observers were puzzled by many aspects of the mission. Particularly baffling was why after docking the cosmonauts remained only 5.5 hours

<sup>31</sup> Sheldon, *op. cit.*, p. 30.

<sup>32</sup> According to the Tass announcement, Cosmonauts Vladimir Shatalov (commander) Alexei Yeliseyev (flight engineer), and Nikolai Rukavishnikov (test engineer) were to conduct joint experiments with orbital station Salyut, placed on near-terrestrial orbit on April 19; make a comprehensive check of the ship's perfected on-board systems; test further manual and automatic control systems, the orientation and stabilization of the ship in different flight conditions; and conduct medical-biological research to study the influence of spaceflight factors on human organisms. (Moscow, Tass International Service, April 23, 1971.)

<sup>33</sup> Moscow Domestic Service, April 25, 1971. The Tass announcement on the completion of the flight recounted the declared purposes of the flight and its accomplishments, giving no hint of problems. (Moscow, Tass International Service, April 25, 1971.)

<sup>34</sup> Pravda, Moscow, April 27, 1971: 1 and 3.

<sup>35</sup> *Ibid.*

<sup>36</sup> In a published interview B. V. Raushenbakh, a corresponding member of the USSR Academy of Sciences, commented that the approach mooring and docking were successfully carried out; that the crewmen "showed that they knew the ship's systems very well and had a fine feeling for the features of their work"; that the flight "envisaged a limited time for the carrying out of scientific and technical research tests", not the two or three orbits for some experiments but rather "the Soyuz-10 crew fulfilled the same volume of work in the time of one orbit"; and finally that "the crew succeeded in completely fulfilling the planned research and testing of the 'station-ship' system." (Red Star, Moscow, April 28, 1971:1)

Cosmonaut Maj. Gen. A. A. Nikolayev observed: "A complex of research on verifying the efficiency of the improved systems for joint search, remote approach, mooring, docking, and undocking of the ship and the automatic station was carried out during the course of this experiment. Together with this, a great volume of research and experimental work was fulfilled." (Red Star, Moscow, April 28, 1971:3.)

and then from all indications did not attempt to board Salyut. It seemed to them an extravagance to launch three men into orbit for such a short duration. The major expense is in the launching.<sup>37</sup> To other American space specialists, in the words of a report from Washington, "Soyuz 10 was something of a bust." The mission did not do all that it should have, in American eyes, if this was to be a manned workshop in earth orbit.<sup>38</sup> Writing four years later, Sheldon attributed the truncated mission to "some unspecified problem with hatches," making it impossible "to complete the intended mission of manning the station."<sup>39</sup>

Clearly the Soyuz 10 mission fell somewhat short of the perfection claimed by the Soviet Union. As one contemporary report put it. "The Soviets may have been first in space with a space station, Salyut. But the mission was, to date at least, not as impressive technically as Moscow led the world to believe."<sup>40</sup>

Generally a note of perfection and triumphalism permeates Soviet commentaries on space. Never is there an admission of error in the means and purposes of the program. Tass said of Lunokhod 1: "Faultlessly functioning for five months are all the systems of the lunar machine and the numerous scientific instruments."<sup>41</sup>

Academician M. V. Keldysh, head of the Soviet Academy of Science, extolled the virtues of Lunokhod along with other automatons as demonstrating "high operational qualities."<sup>42</sup>

Even in times of the ultimate space tragedy, the death of cosmonauts in space accidents, the Russians were careful to preserve the image of perfection. Few details were published on the cause of the death of the three Soyuz 11 cosmonauts, though great tribute was paid to their courage and all were accorded the highest honor in having a state funeral. Academician Boris N. Petrov, the noted Soviet space scientist, explained in *Pravda* that in space exploration, "An accident can never be ruled out . . . when such complex machinery is being tested and mastered." Despite this tragic ending, Petrov wrote, the crew "implemented its program in full measure and with great success." "The checking out of the construction and systems, equipment and in instrumentation of the new Salyut-Soyuz space complex confirmed the correctness of the principles on which it was based."<sup>43</sup>

Thus the image of perfection within the bounds of human reason and the integrity of the program, its sponsors, and space personnel remained intact.

*c. For peace and mankind.*—To maintain the idealistic image of both their system and its underlying political philosophy, the Soviets have persistently identified the purposes of their space program with the search for world peace and achieving the good of mankind. Again the political intent is to cast the Soviet Union in the most favorable light, to its own people and before the world at large. Accordingly, the military aspects of space go unmentioned. Stress is solely on the selfless dedication of the Soviet Union to the welfare of humanity. International space cooperation is placed within this political context.

<sup>37</sup> Wilford. John Noble. U.S. experts puzzled. The New York Times, April 27, 1971:30.

<sup>38</sup> Stanford, Neal. Soviet Salyut misfired? The Christian Science Monitor, April 27, 1971:1.

<sup>39</sup> Sheldon, op. cit., p. 8.

<sup>40</sup> The Christian Science Monitor, April 27, 1971:1.

<sup>41</sup> Moscow. Tass International Service, April 17, 1971. Tass special correspondent Dmitri Dmitriev said of the explorations of Lunokhod 1 on the lunar surface: "It investigated a new group of large craters and the machine had ample opportunities to prove again and again its excellent performance." (Moscow, Tass International Service, March 18, 1971.)

<sup>42</sup> Moscow, Tass International Service, April 12, 1971.

<sup>43</sup> The Washington Post, July 5, 1971:A12.



Thus in a message of congratulations to the Soyuz 11 cosmonauts on June 11, the Soviet leaders expressed confidence that they would "cope well" with "this responsible and complex assignment, whose fulfillment", they said, "will be a major contribution to implementation of plans for developing space for the good of the Soviet people and the whole of mankind."<sup>44</sup>

And in a speech at an electoral meeting in the Kremlin Palace on the following day, Brezhnev explained that Soviet science has produced "outstanding achievements, particularly in the sphere of exploration of the cosmos and heavenly bodies." To the "illustrious Lunokhod which continues working on the Moon, and to our two automatic stations, which continue their flight to Mars," he said, "the world's first manned orbital station, Salyut, has been added." "Like a hospitable hostess," Brezhnev went on, to the applause of the audience, "it welcomed two visitors, the spaceships Soyuz 10 and Soyuz 11." The "courageous crew," Brezhnev continued, "are working successfully in carrying out important research in the interests of the Soviet people and all mankind."<sup>45</sup>

At this time of high visibility for space exploration when Soyuz 11 was orbiting the Earth, rendezvousing and docking with Salyut, the Soviet Union submitted to the United Nations a draft treaty calling for international cooperation in the exploration of the Moon and barring any nation from establishing sovereignty or setting up military bases there.<sup>46</sup>

To *Pravda* editors this proposal demonstrated again Soviet advocacy of the peaceful uses of outer space and reaffirmed the Soviet "people's noble aspiration to direct the successes in the study and utilization of space to strengthening the cause of peace and mutual understanding and cooperation between states."<sup>47</sup>

Reinforcing the image of excellence and perfection, the Soviet Union has, therefore, continued to project the idea that their space activities have a certain nobility of purpose, the most important being the furtherance of the cause of peace and the advancement of space science for the good of all mankind.

*d. Decompression of the space race; commitment to space leadership.*—Khrushchev had catalyzed the space race. Realizing the political benefits to be accrued from early Soviet space gains after Sputnik, he

<sup>44</sup> Shabad, Theodore. 3 Soviet spacemen board workshop after docking. The New York Times, June 8, 1971:14.

<sup>45</sup> Pravda, Moscow, June 12, 1971:1, 2.

<sup>46</sup> Gwertzman, Bernard. Moscow offers draft treaty for cooperation on the Moon. The New York Times, June 9, 1971:2.

<sup>47</sup> A remarkable achievement. Editorial. Pravda, Moscow, June 9, 1971:1. That the Soviet Union is concerned about the positive aspects of space cooperation was evident in a commentary by B. Petrov. He wrote: "Space research is assuming a more and more complex nature. Under these conditions the development of cooperation between scientists and specialists of different countries is becoming urgent. We already have effective examples of cooperation in this sphere. In accordance with the cooperation program of the nine socialist countries, four satellites of the Interkosmos series and the geophysical rocket Vertikal-1 have already been launched, and cooperation with France and certain other countries is developing. In particular, joint research is being conducted into the magnetically linked points of the Earth—Arkhangelsk Oblast and the Kergelen Islands in the Indian Ocean—and the opportunity has arisen for conducting experiments in laser detection of the Moon with the aid of the French angle reflector which is installed on the Soviet Lunokhod and so forth. Agreement has been reached on the development of cooperation between the USSR and the United States in certain directions of space research." (Petrov, B. Looking into the future. Pravda, Moscow, April 12, 1971:3.)

Like the Soviet Union, the United States also states that its space program is designed for the good of mankind. Dr. Wernher von Braun, Deputy Associate Administrator for NASA, concluded a speech at Texas Christian University in February 1971: "Today, our manned and unmanned space flight programs are enriching mankind's knowledge of Earth and the universe, and of man himself. They are helping us to form a more accurate concept of the Creator's physical works, and of our place in this incredible Design. We are standing only at the beginning of a comprehension of Works that inspire increasing awe the more we learn." (Von Braun, Wernher. Man, and space exploration. Inserted in, The Congressional Record, Feb. 24, 1971:E1114. Daily edition.)

made space exploration as much a political weapon of the Cold War as a scientific undertaking. His objective was to humiliate the United States as a global political leader, by degrading its preeminence in science and technology, while magnifying that of the U.S.S.R., and accordingly enlarging Soviet prestige. The United States took up the challenge. Thereafter, a spirit of rivalry permeated Soviet-American space relations.<sup>48</sup>

Under Brezhnev, the rhetoric of Soviet space politics has been toned down and the overt use of space for political purposes restrained. American successes, especially that of the Apollo program, made Soviet comparisons and exaggerated claims less appealing and credible to the world audience and accordingly less effective. Business-like, a term that has characterized the Brezhnev leadership, has also characterized the tone and thrust of Soviet-American space relations, reflecting both the style of the leadership and the changing political milieu from Cold War to detente.<sup>49</sup>

Despite these overt changes, an undercurrent of rivalry persists, less abrasive than in the past but nonetheless present and active. The United States continues to view space exploration within the context of a race.<sup>50</sup>

More subtle and low pressure, but still motivated partly by the unstated political purpose of achieving space leadership, is the Soviet approach, which in the period under review stressed Soviet "firsts" in space rather than making outright references to a space race. In fact, the impression conveyed is that space exploration is so extraordinary a scientific undertaking for the benefit of all mankind that it should not be cheapened by using the means of a "race" as its motivating force.

The Soyuz 10 mission of June 1971 aptly illustrates the subtlety in the Soviet claims of space leadership. In the spring Salyut had been hailed as the first orbital scientific station. On June 7, the Soviets announced that Salyut had started to function as "the first piloted orbital scientific station." "Solved for the first time," Tass said, "was the engineering and technical task of delivering a crew to an orbiting scientific station by a transport ship."<sup>51</sup> "The creation of the manned

<sup>48</sup> For a discussion of Khrushchev and the politics of space, see, Senate Space Committee, Soviet space programs, 1962-1965, chapter II, p. 79-146, and Senate Space Committee, Soviet space programs, 1966-1970, chapter I, p. 53-64.

<sup>49</sup> Ibid.

<sup>50</sup> Examination of published materials during the period under review clearly indicates the inclination of both American space officials and the press to perceive space exploration in a competitive contest. George M. Low, acting Administrator of NASA, told the Senate Space Committee on March 30, 1971, that the United States had achieved space supremacy in the 1960's by putting the first men on the Moon, as well as with other achievements in space science, space applications and aeronautics. "But today," he said, "there is every indication that we will lose this leadership, and once we do, we may not again have the capacity to catch up." (The Washington Post, March 31, 1971:A8.)

<sup>51</sup> Illustrative of the perception by the press is the article by Jack Waugh from the Manned Spacecraft Center in Houston and published in *The Christian Science Monitor* on Feb. 12, 1971. According to Waugh, the American lunar program would end with Apollo 17 late in 1972. After that there were no plans for further U.S. lunar exploration. But the Soviet program, though still unmanned, was, he said, "just cranking up." The Russians, he continued, would be collecting data from the Moon long after the U.S. had stopped. In the exploration of the planets, notably Venus where they had just landed a package, "the Soviets are equal to or ahead of the U.S." He noted that every space expert was aware that the Soviet Union continued to fly more than twice as many space missions a year than the United States. According to Low, the Russians placed 88 payloads into space, to only 34 for the U.S. in 1970. Moreover, Low noted that the Soviet Union was then spending more on space research and development than the U.S. and was building a giant booster rocket. Waugh quoted one "pessimistic American space scientist" at Houston, predicting that "by the time we pick up a Moon program again, who knows when, we will have to get permission from the Russians to land. By then they will own the place." Waugh went on to cite certain shortcomings in the Soviet program but concluded with this view of the "space race": "... what worries American lunar experts is that it may be the old story of the tortoise and the hare. The American hare has been fast and flashy. But the Soviet tortoise in the long run may win the race." (Waugh, Jack. Space race: U.S. hare, Red turtle? *The Christian Science Monitor*, Feb 12, 1971: 1,3.)

<sup>52</sup> Moscow, Tass International Service. June 7, 1971.



orbital scientific station Salyut," observed a *Pravda* editorial two days later, "is one of many major phased achievements of the Soviet investigators of the interminable depths of the universe." And then came a listing of Soviet "firsts": "Starting with the first artificial Earth satellite, the first 'Moon rocket,' and man's first flight in space, the words 'for the first time in the world' have accompanied a large number of launchings of Soviet manned and automatic space apparatuses." According to *Pravda*, Soviet workers and intelligentsia congratulate "all those who have participated in the creation of the world's first manned orbital scientific station on the new and important step in the development of space technology and manned flights."<sup>52</sup>

Finally, Brezhnev, in his election speech in the Kremlin Palace of Congresses on June 12, exclaimed to the applauding audience that Salyut, "the world's first manned orbital station," had joined the "illustrious Lunokhod" then "working on the Moon" and two automatic stations continuing on their flight to Mars, in carrying out the scientific purposes of the Soviet space program.<sup>53</sup>

Thus by inference did the Soviets make their claim to space leadership. The success of the Apollo program was explained away to Soviet advantage by implying a special virtue and wisdom in the Soviet near-Earth orbital approach to manned space exploration. The Apollo program was then coming to an end; the decision to place a man on the Moon was exclusively political; the United States would then revert to the chosen Soviet path of creating near-Earth manned orbital stations—so went the Soviet line of reasoning. Success in launching Salyut, a major step in a long-term program of near-Earth manned orbital missions, was a universally recognized Soviet "first" and thus by inference suggested a rightful Soviet claim to having chosen a path that could lead ultimately to space leadership.

Space race, therefore, may have been dropped from the Soviet lexicon of space politics, but the near two decades of rivalry for space leadership has by no means ended.<sup>54</sup>

*e. Perception of future plans.*—The goal of space leadership is implied in Soviet perceptions of future plans: it is part of the larger political effort to magnify Soviet achievements in space and project a positive national image.

<sup>52</sup> A remarkable achievement. Editorial. *Pravda*, Moscow, June 9, 1971:1.

<sup>53</sup> *Pravda*, Moscow, June 12, 1971: 1,2. In speaking of the various stages in space exploration, Cosmonaut Nikolayev remarked on the occasion of the Soyuz 10 mission: "We are rightly proud that by the efforts of Soviet science and technology and by the efforts of our scientists, designers, engineers, technicians and workers, Soviet people were the first in the world to overcome the majority of these stages." (Red Star, Moscow, April 28, 1971:3.)

<sup>54</sup> Cosmonaut Yegorov suggested many of these ideas in an interview over Budapest radio in which he compared the Soviet and American approach to space exploration. Yegorov elaborated on the Soviet use of Earth orbital flights and long-distance automatic apparatus, and on the dangers of Lunar explorations, such as by Apollo manned spacecraft. "For the time being," he said, "American space exploration is following a different road [from that of the Soviet]. NASA has spent all the money it has for the Apollo program which at the time was an exclusively political decision. They wanted to attain an appropriate political effect by the first manned landing on the moon. This has been achieved and today they do not want to further develop the Apollo program, but they too are returning to the earth orbiting program." Yegorov noted that the Soviet Union still had plans for sending men to the Moon. Preparations were in progress, he said, but this was "a question of the future." Then he raised the question: "Is it possible that the United States was competing in sending a man to the moon only because they did not know the plans and aims of Soviet space explorations?" Americans, he continued, "would have been competing even in any case, but if I wanted to express myself rather brutally, I would say 'advertisement'." "As you will soon see, they will abandon the moon" program. He predicted that the United States "will send up one or two more Apollos and then will switch to earth orbiting flights and to launching space stations orbiting the earth. The first U.S. space station, as far as I know," he concluded, "is planned to be established for 1972." (Budapest Domestic Service, April 6, 1971.) It is significant to note that the Soviets launched Salyut, their first orbital station, on April 19, thirteen days after the interview, and on April 23 launched Soyuz 10 to undertake a rendezvous and docking experiment with Salyut. As American space specialists indicated, the Soviets were far ahead of the U.S. in launching scientific orbital stations.

Serious Soviet assessments of future plans in space were usually made independent from what the United States might have been doing and generally suggested that they were geared uniquely to Soviet resources and capabilities, expectations, goals and purposes. Hence, their perception of future plans portrayed the image of a program well conceived, carefully planned, logically developed, perfectly executed, and steadily pursued. These characteristics are evident in statements made in the past and during the period under review, as in the case of the one by Cosmonaut Nikolayev who remarked on the occasion of the Soyuz 10 mission that the development of the Soviet space program "was not done suddenly, not in the chaos of events, but in a planned and consistent fashion: each preceding step prepared the subsequent step and was a stepping-stone toward the achievement of a new stage of man's path not only toward the investigation but also the utilization of space."<sup>55</sup>

That Soviet attention would continue to be focused on launching deep space probes with automatic devices and creating Earth orbital space stations was evident in the material examined. They were indeed common threads running through much of the commentary during January-July 1971. Academician Petrov sketched out the general lines of Soviet future space activity in a commentary on Cosmonautics Day. Automatic devices, he said, "are now assigned the leading role in the study of space, the Moon and the other heavenly bodies of the solar system." According to Petrov, they were paving the way "for people in space as in probably no other sphere of human activities." With their potential growing every year, such automatic devices "are the true scouts of the universe." And for the next few years "they will remain in practice the only tool for direct study of distant space and planets." Though automatic devices were less costly than manned flights, Petrov still did not rule out the latter: they "have a worthy place in the Soviet space program." Citing the value of manned flights, he observed that at the present stage of the Soviet space program, "space in the vicinity of Earth, where manned flights are especially effective, is the principal arena for such flights." Petrov termed the first epoch of the Space Age one of breakthrough for man into space; the second, he said, might be called "the era of orbital stations and systematic research work by man in space laboratories, a decade of the extensive use of automatic stations." He predicted that the next decade would doubtless bring about the "further improvement of automatic scouts of the universe."<sup>56</sup>

On the same occasion Cosmonaut Beregovoy gave a more colorful and appealing view of future orbital stations. On the future course of Soviet space activities he said:

Cosmonautics will obviously develop into two directions—manned orbital stations and automatic craft for investigating deep space. Let us daydream a little. In the next decade I believe that permanent orbital stations and large-scale space houses beyond the limits of our planet will become commonplace. Scientists and specialists will work onboard them. Ferry craft will cruise between the stations and the Earth, replacing the crews regularly. Such stations will prove very valuable both for scientific research and for people's practical activity.<sup>57</sup>

<sup>55</sup> Nikolayev, A. A. Maj. Gen. A new step in space. Red Star, Moscow, April 23, 1971:3.

<sup>56</sup> Petrov, Academician B. Looking into the future. Pravda, Moscow, April 12, 1971:3. (Condensed in Current Digest of the Soviet Press, May 11, 1971, v. 23, no. 15:45.)

<sup>57</sup> Trud, Moscow, April 21, 1971:3.



Deep space probes with automatic devices, manned space stations operating in near-Earth orbit, and even manned lunar landings were thus vital elements in future Soviet space plans.<sup>58</sup>

What seems significant in these projections, besides suggesting the technical aspects of spaceflight, is the image they portray to their reading and listening audience. It is a self-affirming image, conveying the notion that what is being undertaken in space is intelligently conceived and prudently executed—and, it might be added from the viewpoint of an outside observer, politically effective, for it suggests to the Soviet and space interested world audience the positive virtues of the Soviet space program.

#### 4. *Identifying Space Achievements with CPSU and Soviet Government*

a. *CPSU and Soviet Government as source of space success.*—Another use of space for political purposes is the calculated Soviet habit of identifying their space achievements with the CPSU and the Soviet Government: the Communist Party, and by inference the Soviet Government are eulogized as the primary source of success in space.

The rituals of Soviet space activities, notably in cases of manned spaceflight, call for a dramatic and spectacular setting from lift-off to the final reception of cosmonauts by the Soviet leaders in the Kremlin Palace of Congresses. Vigorous efforts are made to communicate the event to the Soviet people as it unfolds. The media are saturated with space oriented material. Extensive commentaries by space scientists, engineers, cosmonauts, and popular science writers are carried through media channels to the people. Every effort seems to be made to let the people know just what is being done, why it is being done, and who is doing it—but most important, who is responsible for bringing to the Soviet people glory and renown through success in space. Responsibility rests, of course, with the CPSU and the Soviet Government; their institutional value is identified with the glory and success in space; they are shown to be the font of all beneficence for the Soviet people, and by implication, also for mankind.

In a political sense the primary source of energy for Soviet space activity is the Directives of the Five Year Plan—for the period under review it is the Directives of the 24th Congress of the CPSU. This document gives formal and official sanction to what is to be done; it becomes the point of reference for space scientists, cosmonauts, and political leaders; it is the nexus, connecting space activity with space politics.<sup>59</sup>

<sup>58</sup> Cosmonaut Yegorov said of Soviet manned lunar landing plans: "Of course there have, and there are still such ideas. We do think of this as well and preparations are in progress, too. But this is a question of the future." (Budapest Domestic Service, April 6, 1971.)

Sheldon writes in 1975: "For the future, the Russians speak confidently of building a large and permanent orbital station for many men, for the purpose both of conducting Earth applications work and scientific observation of the stars, and additionally serving as an orbital assembly, checkout, and launch facility to send manned expeditions to the Moon and planets. Keldysh, President of the Soviet Academy of Sciences, predicted in October 1969 that such a station might be ten years away but would more likely be available in five years. It may be that the long awaited new large launch vehicle will find use in lifting major components for such a station. Using this vehicle, the U.S.S.R. could put up its equivalent of the U.S. Skylab any time from 1975 on." (Sheldon, op. cit., p. 76.) Regarding exploration of the Moon, Sheldon writes: "... a Soviet manned lunar landing does not seem imminent, but is still expected as part of Soviet long range plans. Going to the Moon with men has been talked about so long and prepared for at such expense by the Russians that one must assume they will proceed as soon as they solve their present problems of unreliability of hardware." (Ibid., p. 78.)

<sup>59</sup> The Directive on space published by the 24th Congress for the Five-Year Plan covering the period 1971-1975 states: "To ensure in the new five-year period. . . . The conduct of scientific work in outer space for the purpose of the [further] development of long-range telephone and telegraph communications, television, meteorological forecasting and the study of natural resources, geographical research and the accomplishment of other national-economic tasks with the aid of satellites and automatic and piloted apparatus, and also the continuation of basic research on the Moon and the planets of the solar system: . . ." (Pravda and Izvestiya, April 11, 1971:1, Current Digest of the Soviet press, June 1, 1971, v. 23, no.18:12.)

On the occasion of the Soyuz 11 mission *Pravda* reviewed the directive of the 24th Congress that mapped out what it termed a broad program of scientific work in space. "Soviet scientists, engineers, and technicians, workers, and our famous cosmonauts," the editorial said, "are persistently and purposefully implementing it."<sup>60</sup>

At the conclusion of the mission Brezhnev heaped praise on Soviet industry, technology, and science for making a great contribution "toward fulfilling the majestic program" set down by the 24th Congress.<sup>61</sup>

*b. High visibility of political leaders in linkage with space.*—Soviet political leaders are featured prominently in these efforts to maximize party linkage with space. At crucial points of high visibility, from pre-lift-off to in-space flight, return, and the Kremlin reception, the presence of the Soviet leadership is made manifest. Part of the ritual in manned spaceflight missions is the telegram of greeting and congratulations from Brezhnev, as General Secretary of the CPSU, Nikolay Podgorny as President of the USSR Supreme Soviet Presidium, and Alexey N. Kosygin as Chairman (or Premier) of the USSR Council of Ministers, on behalf of their respective institutions "warmly" congratulating the crew. Emphasis is placed on achievement in space science in keeping with, as in the case of Soyuz 11, the "grandiose plans" of the Party.<sup>62</sup> Respectfully and according to formalized routine, the cosmonauts respond from space, noting, as in the case of the Salyut crew, that they were "profoundly grateful" to the Party and Soviet Government for the congratulations and pledged to fulfill the "motherland's assignment."<sup>63</sup>

After the flight, the Soviet leaders host a reception for the cosmonauts in which again the linkage of politics to space is maximized. The reception becomes an occasion for an outpouring of praise in recognition of the beneficence bestowed upon Soviet space science and its personnel by the political leadership. Podgorny observed that the Soyuz 10 mission occurred as the Soviet people were embarking on the carrying out of the decisions of the 24th CPSU Congress—decisions, he emphasized, designed for the "upsurge of all spheres of national economy and at further increasing the well-being" of the Soviet people. In an air of self-praise, he exclaimed: "The constant attention which the Party gives the advancement of science and technology has enabled our country to emerge in the forefront of scientific-technical progress, which plays an increasingly important role in the modern world."<sup>64</sup>

On other occasions of high visibility the Soviet leaders enhance the Party-space linkage by implying, if not explicitly stating, the causal connection of one to the other. A case in point is May Day, a day of consummate commemoration in the liturgy of communism and one that is filled with historic meaning. On May Day 1971, Brezhnev, speaking as party leader and from the most sacred of platforms, the

<sup>60</sup> *Pravda*, Moscow, June 9, 1971:1.

<sup>61</sup> *Pravda*, Moscow, June 12, 1971:1.2 Commentary over Moscow radio during the Salyut 1 mission linked the purposes of the mission to the directive on space in the 24th Party Congress Directive. (Moscow Domestic Service, April 19, 1971.)

<sup>62</sup> On the occasion of the Soyuz 10 mission the greeting stated: "A new stage in space exploration—the program for the work of the 'Salyut' orbital research station began to be implemented in the year of the 24th Congress of the CPSU, which worked out majestic plans for a further powerful boost of the socialist economy, for strengthening the might of the Soviet state, for increasing the living and cultural standards of our people." (Moscow, Tass International Service, April 26, 1971.)

<sup>63</sup> Moscow, Tass International Service, June 7, 1971.

<sup>64</sup> Moscow Domestic Service, April 30, 1971.



Lenin Mausoleum, singled out the achievement of Soyuz 10 in extolling the virtues of communism, saying triumphantly:

It was with feeling of admiration and pride that Soviet people learned of a new triumph of Soviet science and engineering—the successful launchings of the “Salyut” orbital space station and the “Soyuz-10” spaceship. A new important step has been made in space exploration. This is a great achievement, an embodiment of the talent and labour of Soviet scientists, engineers, technicians and workers, the skill and selflessness of our hero cosmonauts.<sup>65</sup>

The Party-Government-space connection is not, however, a one-way effort. Soviet scientists and cosmonauts reciprocate, acknowledging the primary role of the Party and Government and expressing their gratitude for the beneficence flowing therefrom. Speaking of Soviet science in general, Academician Keldysh, President of the USSR Academy of Science, underscored the “responsible tasks” entrusted to it by the CPSU which, he said, “gives all-round support to scientists and displays constant concern for the development of science.” In reciprocation, he exhorted Soviet scientists to “assure the 24th Congress of the Communist Party of the Soviet Union” that they “will exert every effort for the further development of science and the acceleration of technical progress for the welfare of our people and for the sake of the great cause of communism.”<sup>66</sup> On behalf of Soviet space scientists, Academician G. Petrov, Professor A. Dmitriyev, and Doctor of Physical and Mathematical Sciences M. Marov, affirmed to the 24th CPSU Congress that in implementing Party directives on cosmonautics they did not doubt “that the upcoming years will be marked by new achievements in the study and conquest of space.”<sup>67</sup>

The cosmonauts reciprocate in like manner. At lift-off the cosmonaut commander routinely pledges in a formal statement on behalf of the crew to carry out successfully the assigned tasks and expresses “warm thanks” to the Communist Party and Soviet Government leaders “for their high trust” in them. Cosmonaut Shatalov, commander of Soyuz 10, Communist Party member, and delegate to the 24th Party Congress, shared his impressions of the Congress in his pre-flight statement, remarking that “he and his comrades took very close to heart the report delivered by Leonid Brezhnev and the Congress decisions. The cosmonauts were particularly moved by the passages referring to the plans for space exploration,” according to Tass.<sup>68</sup> At the Kremlin reception the cosmonaut commander, as in the case of Shatalov, performs accepted ritual when he reports personally to the Party and Government leaders on behalf of the crew that their assignment had been fulfilled and that they were ready to take on new tasks, and then expresses the crew’s gratitude for entrusting the mission to them.<sup>69</sup>

Thus, by symbols, rituals, and other public acts the Communist Party and Soviet Government leaders are linked to space in a variety of ways. The purpose is apparently to create the image and reality that the Party especially and its leadership are the primary source of space achievements, the sole dispenser of beneficence and wisdom, and accordingly a fit object of public confidence, respect, and perhaps even veneration.

<sup>65</sup> Moscow, Tass International Service, May 1, 1971.

<sup>66</sup> Pravda, April 2, 1971:5. *In*, Current digest of the Soviet press, v. 23, no. 15, May 11, 1971: 22 and 24.

<sup>67</sup> Pravda, Moscow, March 30, 1971:4.

<sup>68</sup> Moscow, Tass International Service, April 23, 1971.

<sup>69</sup> Moscow, Tass International Service, April 26, 1971 and April 30, 1971.

c. *Value and practical results of space exploration.*—In an apparent effort to fortify the close identity of space achievements with the CPSU and Soviet Government, the political leadership takes great pains to build solid popular support for the Soviet space program. One aspect of this effort is to point out in innumerable ways to the Soviet people the practical value and utility of space exploration for them.

During the period under review Soviet political leaders, space scientists, cosmonauts, and the media interspersed their commentaries on space almost routinely with assurances that space exploration made practical sense, often supporting their observations with references to the Five Year Plan Directive on space. On the occasion of the Soyuz 11 mission a *Pravda* editorial reiterated the directive from the 24th CPSU Congress which had "mapped out a broad program of scientific work in space for the purpose of developing communications, television, weather forecasting and the study of natural resources, geographic research, and the solution of other national economic and scientific tasks." "Soviet scientists, engineers, and technicians, workers, and our famous cosmonauts," *Pravda* stated, "are persistently and purposefully implementing" the directive.<sup>70</sup>

The experiments initiated in the Salyut orbital station, *Pravda* went on, "show that Soviet science has acquired a powerful new means for the most rapid fulfillment of the exciting plans of the 'space 5-year plan.'" <sup>71</sup> Academician Keldysh made the same injunction to the Communist Party Congress. "While developing the utilization of space devices for the exploration of the universe," he said, "we must increasingly employ these devices to accomplish practical tasks in the fields of communications, meteorology and navigation, to study natural resources and to carry out geographic and oceanographic research."<sup>72</sup>

Other scientists reiterated what came to be a familiar theme. Academician A. Blagonravov, Chairman of the Commission of the Soviet Academy of Sciences for the Exploration and Use of Outer Space, cited the practical value of orbital stations such as Salyut in space meteorology, space photography, space geology, the study of resources, the discovery of new mineral resources, oceanographic work, and communications.<sup>73</sup>

"Over 25 million inhabitants of Siberia, the Far North, the Far East, Central Asia have now had an opportunity of viewing transmissions from the Moscow Television Center and have really become aware of the practical work of space research," according to Academician G. Petrov, Professor A. Dmitriyev, and Dr. M. Marov.<sup>74</sup> Besides the practical spinoffs, cosmonautics, in the words of Cosmonaut Nikolayev "is stimulating the development of many fields of technology as well." "In an amazingly short period of time," he said, "cosmonautics has become one of the main levers of scientific and technical progress."<sup>75</sup>

Thus, while Soviet public opinion may have no direct impact on decisionmaking in the Soviet system, still the political leadership respects this vast, formless force, and being skilled manipulators of public opinion, they would hardly let slip by an opportunity to

<sup>70</sup> *Pravda*, June 9, 1971:1.

<sup>71</sup> *Ibid.*

<sup>72</sup> *Pravda*, April 2, 1971:5. *In*, Current digest of the Soviet press, v. 23, no. 15, May 11, 1971: 22 and 24.

<sup>73</sup> Blagonravov, A. A. What are "ethereal settlements" needed for? *Pravda*, Moscow, April 26, 1971:2.

<sup>74</sup> *Pravda*, Moscow, March 30, 1971:4.

<sup>75</sup> Moscow, Tass International Service, April 28, 1971.



strengthen their quest for legitimacy by identifying their leadership position with so dramatic and successful an undertaking as space exploration.

*d. Use of scientists and cosmonauts as political instruments.*—The foregoing commentary suggests a final point in Soviet efforts to identify space achievements with the Communist Party and Soviet Government; namely, the use of scientists and cosmonauts, at least in part, as political instrumentalities: both are called on to justify Soviet space exploration and to publicize its achievements.

Doubtless Soviet space scientists seek to advance their own professional interests and that of science in general and, moreover, perform a most important role as educators for the Soviet masses. But the data examined suggests that their commentaries are also intended to lend professional support to the decisions on space taken by the political leadership. More than that, they contribute to the larger task of magnifying the role of the Communist Party and Soviet Government by associating them with success and achievement in space. Such commentaries are not confined to technical journals but are found in the major Soviet press, such as, *Pravda* (the newspaper of the CPSU), *Izvestiya* (the organ of the Soviet Government), and *Red Star* (the journal of the armed forces). In its domestic and international service Tass, as well as the Soviet press, draws heavily upon these commentaries for use in the media's mainstream coverage. In addition interviews are conducted with space scientists as in the case of Professor Vladimir Siforov, Director of the Moscow Institute of Information Transmission Problems, who elaborated on the purposes of the Mars 2 and Mars 3 missions.<sup>76</sup>

Often the tone and thrust of commentaries by scientists are straightforward, highly technical, and devoid of obvious propaganda, as on the occasion of the Soyuz 11 mission when Academician V. Parin, one of the Soviet Union's leading scientists in the field of physiology and medicine, discussed in a highly technical article the biomedical aspects of space flight.<sup>77</sup> Other times they are flavored with political themes. But in all cases the underlying assumption is justification and reaffirmation for what is being done and of the judgment of the political leadership in doing it.

Similarly, the cosmonauts have a political role to play, a role to be examined in the next section.

## 5. *Rituals and Mythology of Space*

*a. Political purpose: Glorification of the U.S.S.R.*—With nearly two decades' experience in space politics the Soviets have established a fairly set ritual for staging manned spaceflight missions to achieve maximum political effect. This ritual seems designed to create a certain mystique and mythology around the whole idea of space exploration. The political purpose is readily apparent; namely, to glorify the U.S.S.R., its institutions, people, leaders, and ideology, and to emphasize in a dramatic way the value of space exploration.

*b. Building prestige of cosmonauts and cosmonautics.*—In the Soviet Union the cosmonauts and cosmonautics command great prestige. Soviet sociologists report that high school students in the Soviet

<sup>76</sup> Moscow, Tass International Service, June 1, 1971.

<sup>77</sup> Parin, V. Man is settling in orbit. *Pravda*, Moscow, June 11, 1971: 3. Another example is the article by Academician Blagonravov and Engineer Yu. Zaytsev on the occasion of the Salyut-Soyuz 11 flight in which they discussed the problem of automatic stations and manned spaceflights. (Man is opening up the universe. *Nedelya*, Moscow, no. 17, April 19-25, 1971: 6-7.)



Union view the profession of cosmonaut as one of the most popular and prestigious. To Soviet youth the cosmonauts are among the most important heroes. They are much better known to the public at large than are the Soviet political leaders: the private lives of the latter are kept secret, while those of the cosmonauts are given full coverage in the media with intimate, personal details about wives, families, and hobbies, the sort of homey details that Russians like to know but are rarely given on their political leaders.<sup>78</sup>

The Soviet media fortify the image and reality of prestige.

Articles on space generally seem to project a feeling of confidence and affirm an underlying assumption on the value of spaceflight to the nation. An extensive interview with the Chief Designer of Space-ships in March 1971, perhaps the most prestigious but unnamed figure in Soviet space affairs, exuded this feeling of the prestigious nature of spaceflight and reflected an attitude of respect, even awe, which his position commands.<sup>79</sup>

The Soviet leadership takes great pains in building and maintaining the prestige of cosmonauts and cosmonautics, and it does so by creating around them rituals and symbols that embody the virtues of heroism and wisdom and exemplify national greatness. April 12, the anniversary of Gagarin's orbital spaceflight in Vostok in 1961, has been proclaimed Cosmonautics Day and is celebrated, as that in 1971, with great pomp and circumstance. Some 6,000 people joined the entire Soviet leadership at the Kremlin Palace of Congresses to commemorate this event.<sup>80</sup> The political impact of the event was apparent in the message sent to the Central Committee of the CPSU, Presidium of the Supreme Soviet, and the U.S.S.R. Council of Ministers which said in characteristic, triumphant tones:

Yuriy Gagarin's flight was a triumph of socialism, a brilliant confirmation of Lenin's prediction about the stormy growth of the socialist state's might, about the flourishing of the inexhaustible talents of our people. The Soviet state's outstanding successes in space exploration have won world-wide recognition.<sup>81</sup>

Moreover, cosmonauts are featured prominently in parades, such as that on May Day 1971, and are singled out for high praise by the CPSU in its list of commemorative May Day slogans. Ranked 37th in a total of 60, the slogan for 1971 exclaimed:

Glory to Soviet scientists, designers, engineers, technicians, and workers who are opening new horizons in the conquering of space!

Glory to the valiant Soviet cosmonauts!<sup>82</sup>

Finally, the prominence given to Soviet space scientists and cosmonauts in the media indicates the esteem with which they are held by the Soviet people and the desire by the leadership to build upon that esteem and draw political capital from it.

<sup>78</sup> Gwertzman, Bernard. Russians mourn Soyuz 11 astronauts; 3 deaths still unexplained. The New York Times, July 2, 1971: 14.

<sup>79</sup> Kudryavtseva, G. Here the "Soyuzes" are born. Socialist industry, Moscow, March 14, 1971: 4.

<sup>80</sup> Moscow, Tass International Service, April 12, 1971, and the New York Times, April 13, 1971: 18.

<sup>81</sup> Moscow, Tass International Service, April 12, 1971. Taking full advantage of the occasion to make a political point of high visibility at that time, the message went on: "We wrathfully condemn the dangerous armed provocations organized by the imperialist circles and resolutely demand an end to the criminal war conducted by the United States in Vietnam, Laos, and Cambodia and a full liquidation of the aftermaths of Israel's aggression against Arab countries."

<sup>82</sup> Text of CPSU CC slogans for May 1, 1971. Pravda, Moscow, April 18, 1971: 1. Coverage on May Day in Moscow Domestic Service, May 1, 1971.

Perhaps the greatest source of prestige-building for the cosmonauts and cosmonautics is the ritual that surrounds manned spaceflight missions. The flight of Soyuz 10 on April 23, 1971 is characteristic. In a pre-recorded message at the Baykonur Cosmodrome, Cosmonaut Commander Shatalov, a member of the CPSU and delegate to the 24th Congress, explained in general terms the purpose of the mission, expressed the gratitude of the crew to the CPSU Central Committee and the Soviet Government for entrusting them with the mission, shared his impressions of the Congress, and pledged to succeed in carrying out the mission.<sup>83</sup>

During the flight messages are exchanged between the Soviet leaders and the orbiting crewmen, usually mixing mutual congratulations with laudatory comments on the value of the mission for space science and the socialist economy and in this instance the carrying out of the space directives of the Five Year Plan.<sup>84</sup>

Upon returning to Earth Cosmonauts Shatalov, Yeliseyev (a member of the Komsomol CC), and Rukavishnikov (also a Communist Party member) were given a reception in Georgievsky Hall of the Great Kremlin Palace, hosted by the top Party and Government leadership. Entering the hall to the sound of Glinka's chorus "Glory" and to a "stormy applause" from the audience, the three cosmonauts reported to their leaders who "warmly" greeted them, on the completion of their assignment and announced their willingness to fulfill new tasks. Flowers were presented to the leaders and the crewmen.<sup>85</sup>

After delivering an address extolling Soviet virtues, the value of space exploration, and the heroism of the cosmonauts, President Podgorny presented each with awards: Shatalov and Yeliseyev, both Pilot-Cosmonauts of the U.S.S.R. and twice awarded Hero of the Soviet Union, were given the Order of Lenin; Shatalov was promoted to the rank of air force major general; Rukavishnikov was awarded the title, Hero of the Soviet Union, together with the Order of Lenin, the Gold Star Medal, and the title, "Pilot-Cosmonaut of the U.S.S.R." <sup>86</sup>

What is significant about Podgorny's address is the choice of words that seem intended to magnify the prestige of the cosmonauts, glorify the Party and nation-state, and add to the mystique of space exploration. Hence, Podgorny referred to "our glorious cosmonauts," the "intrepid cosmonauts," the "gallant cosmonauts." He noted that the whole planet had reverberated with the world's first spaceflight "by our glorious countryman," Gagarin. His "torch" of "glorious deeds was carried by other Soviet cosmonauts, worthy sons of the Soviet motherland who embody the best characteristics of our heroic people." Podgorny informed his audience that "the glorious crew of the Soyuz 10 spacecraft has been given our motherland's highest awards." He expressed confidence in "more victories in space which glorify our people and our country." He pledged a toast to the "gallant crew of the Soyuz 10 spaceship . . . and to all Soviet cosmonauts, the wonderful sons of our great motherland, as well as to our scientists, designers, engineers, technicians and workers who are opening new vistas in the

<sup>83</sup> Moscow, Tass International Service, April 23, 1971.

<sup>84</sup> Moscow, Tass International Service, April 26, 1971.

<sup>85</sup> Moscow, Tass International Service, April 23, 1971 and April 30, 1971.

<sup>86</sup> Moscow, Domestic Service, April 30, 1971.

conquest of space. To our great Soviet people, the builders of communism!"<sup>87</sup>

Full media coverage is given to such events so that the Soviet people themselves can share in the excitement of manned spaceflight and the honors being officially bestowed upon their cosmonauts. The airwaves carry such praise of them and their work as this broadcast over Moscow Radio on April 28, glorifying the success of Soyuz 10:

Our people are proud of the fruitful work by the heroic conquerors of the spaces of the universe. Millions of people repeat from the bottom of their hearts the words of the CPSU Central Committee May Day slogan: Glory to the Soviet scientists, designers, engineers, technicians, and workers who are opening new horizons in mastering space; glory to the valiant Soviet cosmonauts.<sup>88</sup>

Having been elevated to this high level of prestige by all the power and authority of the CPSU and Soviet Government, it is no wonder that the Soviet people venerate their cosmonauts and that the political leadership uses them effectively as communicators on space matters and as ambassadors-of-goodwill.<sup>89</sup>

*c. On the death of the Soyuz 11 cosmonauts.*—Perhaps nowhere is the prestige of the cosmonauts and cosmonautics in the Soviet Union more dramatically revealed than in the cases when tragedy strikes, as occurred with the death of the three Soyuz 11 crewmen. Such tragedies are occasions for a genuine outpouring of grief for the loss of human life, adulation for demonstrated manly courage, and gratitude for achievements in the service of the nation.<sup>90</sup>

On June 30, 1971, Tass announced that on the 29th the Soyuz 11 crew had completed their flight program and was directed to make a landing. Returning to Soyuz 11, the crewmen prepared to unlink from Salyut. This task accomplished, they fired the braking engine at the required time; the parachute system was engaged; and before landing, the soft-landing engines were fired. Descent and landing in a pre-set area were smoothly executed. A helicopter-borne recovery group, landing simultaneously with the spaceship, opened the hatch and found the crew, Pilot-Cosmonaut Lieut. Col. Georgiy T. Dobrovolskiy, Flight Engineer Vladislav N. Volkov, and Test Engineer Viktor I. Patsayev, in their seats "without any sign of life."<sup>91</sup>

A commission was established to investigate the accident. On July 12, it reported that the cosmonauts died as a result of a rapid change in the capsule's air pressure. The drop in pressure had been caused by "a loss of the ship's sealing."<sup>92</sup>

<sup>87</sup> Moscow Domestic Service, April 30, 1971.

<sup>88</sup> Moscow Domestic Service, April 28, 1971.

<sup>89</sup> During the period under review the material examined abounds with instances where the cosmonauts were used in the media to explain certain aspects of the Soviet space program. In a lengthy article in *Red Star*, Nikolayev discussed the value of the Soyuz 10 mission. (Nikolayev, Maj. Gen. A. A. A new step in space. *Red Star*, Moscow, April 28, 1971: 3.) Part of the tasks of Soviet cosmonauts is to travel abroad. In Feb. 1971, Valentina Tereshkova, the first spacewoman in the world, was a guest of honor at the All-Slovak Aktiv of Women-Workers in Bratislava, Czechoslovakia. Such occasions provide opportunities for the cosmonauts to communicate with peoples beyond their own borders. (Prague, CTK International Service, Feb. 26, 1971.)

<sup>90</sup> For references to the death of Cosmonaut Komarov, the first man to die in a space accident, see, Senate Space Committee, Soviet space programs, 1966-1970, p. 18, 22, 23-30, 38, 44, 49, 62, and 74.

<sup>91</sup> Moscow, Tass International Service, June 30, 1971.

<sup>92</sup> The New York Times, July 12, 1971: 1. Sheldon noted that the crewmen were the "victims of an air leak in a valve of their reentry command module which came open shortly before reentry." (Sheldon, op. cit., p. 9.)



The Soviet leadership extended the highest honors to the deceased crewmen by ordering a state funeral. Their bodies lay-in-state for eight hours in a hall of the Central Army House in mid-town Moscow. Their portraits, draped in black, adorned the facade of the building. Solemn music was played; wreathes and flowers from the Soviet leadership and others were displayed; and honor guards surrounded the open caskets as thousands of grief-stricken Moscovites paid their last respects to their space heroes. Brezhnev, Kosygin, Podgorny, and other Soviet leaders took turns joining the honor guard. Letters of condolences from the leadership, eulogistic and laudatory, were sent to the next-of-kin. Members of the highest echelons in Soviet political, scientific, and military life signed the obituaries.<sup>93</sup> All three cosmonauts were awarded posthumously the highest honors of the state.<sup>94</sup> An open letter from all pilot cosmonauts was published, expressing their grief and pledging to carry on the tasks set forth in the Soviet space program.<sup>95</sup>

The grief of the Soviet people was great, and it was publicly portrayed through the media. Moscow radio broadcast songs of mourning; television screens showed the black framed portraits of the dead space heroes. Their tragic deaths, said Tass, "cause a deep pain in the hearts of the Soviet people"; their loss was "taken by everybody as the loss of the most dear friends and relatives." Poems and eulogies by famous writers were read over the radio and television. Commemorative articles were published as special features in *Pravda* and *Izvestiya*. Three streets in Kaluga, the birthplace and home of Russia's space pioneer Konstantin Tsiolkovsky, were named in their honor. Tass summed up the feeling of grief in the nation this way: "The whole country is in deep mourning."<sup>96</sup>

For the space interested public abroad the accident seemed to be perceived as a loss for all humanity. Messages of condolences poured in from the Socialist states, extolling the courage of the cosmonauts and the glory they added to the Soviet Union and to world com-

<sup>93</sup> Moscow, Tass International Service, July 1, 1971. "For many of the Russians who stood in line under a blistering sun the experience of viewing the cosmonauts . . . was emotionally trying," said an Associated Press dispatch from Moscow. (The Washington Post, July 2, 1971:A22.) Characteristic of the letters of condolences from the leadership was the following to the Dobrovolskiy family: "We are deeply grieved at the death of your son and husband, the courageous pilot cosmonaut, commander of the ship, Soyuz 11, stalwart and fearless communist, faithful son of the Soviet people, Hero of the Soviet Union. . . . Georgiy Timofeyevich devoted his whole life to selflessly serving the homeland and the Soviet people. His life will always inspire the Soviet people in exploits in the name of the triumph of communism." (Moscow Domestic Service, June 30, 1971.)

<sup>94</sup> The title Hero of the Soviet Union was awarded to Dobrovolskiy; the second Gold Star Medal and title Hero of the Soviet Union to Volkov; the title Hero of the Soviet Union to Patsayev—all "for heroism and courage shown during the test of the new space complex, the orbital station Salyut and the transport ship Soyuz 11." (Moscow Domestic Service, June 30, 1971.)

<sup>95</sup> The letter seemed intended to reaffirm Soviet purposes in space and to strengthen the confidence of the Soviet people in their space program. "We express firm confidence that what happened cannot stop the further development and perfection of space engineering and man's striving for space, striving for the cognition of enigmas of the universe," the letter said. It expressed grief in the loss "but also pride for what they have done for the homeland in the space orbit." It noted the success of their experiments and the "tremendous possibilities" opened up for mankind by orbital stations. The cosmonauts carried out the program with "extreme accuracy and transmitted data that will enable their comrades" to go forward and develop space exploration. All three cosmonauts had much in common, the letter said. "In the first place it was their infinite love of our homeland, tremendous will power and self-discipline, tireless striving for perfection, and inflexible devotion to space." Orbital stations were a complex but natural stage in developing Soviet space engineering, the cosmonauts said; and they concluded: "The Central Committee of the CPSU, the Soviet Government, our people may be confident that each of us—both those who already made space flights, and those who are still to make their first flight to a high orbit—will do their best to even more strengthen and glorify the undying space glory of our socialist homeland." (Moscow, Tass International Service, July 1, 1971.)

<sup>96</sup> Moscow, Tass International Service, June 30, 1971, and The New York Times, July 2, 1971:14. Bernard Gwertzman, Moscow correspondent of *The Times*, described the great prestige the cosmonauts have among the Soviet people and added that this explained the great "outpouring of emotion" at the news of Soyuz 11 accident. "Radio commentators," he said, "were even trying to discourage people from going to view the bodies, saying that thousands were already on line in the 90 degree heat."

munism. The space community in the United States and Britain responded with messages of condolences.<sup>97</sup>

The final tribute to the cosmonauts was that reserved for Soviet citizens held in the highest esteem by the Communist Party and Soviet State—a military state funeral with a procession to Red Square, funeral orations by the Soviet leaders from the platform on Lenin's Mausoleum, and final burial of ashes in the Soviet pantheon of heroes, the Kremlin Wall. The central theme of Keldysh's oration, besides giving reassurance on future spaceflight, was that the Soyuz 11 flight was successful in that it opened a new stage in exploring space using manned orbital stations and that the flight program of the dead cosmonauts was a scientific success.<sup>98</sup>

Thus in life and death Soviet cosmonauts are treated with great respect and esteem. The treatment accorded them and the honors extended by the Party and Government have become a central part of the ritual in the growing mythology of the Communist Party, its doctrine, and the Soviet state. This ritual and mythology are important because they show the high value that Soviet political leaders place upon space exploration as a national effort; they fortify the positive political image of perfection; but more important, they are instruments that measure the Soviet commitment to space exploration.

#### *6. Soviet Political Uses of Space: A Summing Up*

*a. Major themes.*—To sum up, Soviet political uses of space during January to July 1971 were projected against a background of tension produced by U.S. expansion of the war in Indochina. Familiar political themes of the past emerged: downgrading of the American space effort; magnifying Soviet space achievements; identifying success in space with the CPSU, the Soviet Government, and their leadership; and reaffirming the rituals and mythology of space exploration. Absent were some of the old propaganda themes, the bombast, and self-congratulatory rhetoric of bygone years.

*b. Accent on the positive.*—The accent was rather on the positive side of the Soviet space effort—their achievements, steadiness of purpose, skillful planning, and care in execution. An air of self-confidence appeared to have set in, a feeling that the Soviet Union has arrived in space, that it has really made its mark, and that its achievements have won for them the respect of the world. Absent was the feeling of inferiority so apparent beneath the over-compensating bombast of the Khrushchev era.

*c. Space exploration: A serious business.*—Clearly, space exploration is a serious business for the Soviets, and while political spinoffs were sought in binding the people to space, still the efforts made to communicate with and educate the masses in the complexities of space exploration illustrate the seriousness of the enterprise for them.

The Soviet style and tone of communication on space matters may be stilted, stylized to a fault, and almost Victorian in its attempt to generate an aura of old-fashioned heroism around manned spaceflight;

<sup>97</sup> Budapest Domestic Service, June 30, 1971; Sofia Domestic Service, June 30, 1971; East Berlin ADN International Service, June 30, 1971; and Moscow, Tass International Service, June 30, 1971.

<sup>98</sup> Moscow, Tass International Service, July 2, 1971, and Gwertzman, Bernard. Drop in pressure hinted in deaths of 3 astronauts. The New York Times, July 3, 1971:1. In the crowd of honored guests at the funeral was Col. Thomas P. Stafford, the American astronaut who attended as President Nixon's envoy. At the time of the funeral for Cosmonaut Komarov, who had perished in the crash of Soyuz 1 in April 1967, the Russians refused to admit an American astronaut to the funeral.



it may represent itself as the systematic bearer of glad tidings to keep up the image of perfection; still, beneath the rhetoric of the communicators is revealed a hard, serious commitment to space exploration. The idea of space as a durable, on-going national commitment is very much in evidence and seems to be well integrated into the policies and programs, politics and purposes of the Party and Government. Space exploration is geared to the national economy, and efforts are made to relate space to the practical needs of society, a thrust that is also evident in the larger Soviet commitment to building an impressive scientific infrastructure. In a word, an air of institutional permanency is apparent, and while much energy has been expended in the rituals and mythology of space, still the Soviets appear to be building on a reality, not a legend.

#### C. IN AN ENVIRONMENT OF DETENTE, JANUARY–JULY 1975

##### 1. *Detente and the Apollo-Soyuz Joint Mission*

*a. Against a background of improving relations.*—The tone and character of Soviet-American relations had changed radically by January–July 1975. Summit conferences in Moscow, Washington, and Vladivostok had established the outer structure of relations within which detente as an idea and process took root and flourished. While the momentum of detente had slackened in the spring, summer, and autumn of 1975 as both nations came to grips with the hard problems of military detente; namely, SALT II and MBFR, still both sides remained firmly committed to their mutually declared policy and seemed undeterred in their efforts to iron out serious, fundamental differences.

Thus, the political climate was strikingly different in the first half of 1975 compared with that in 1971. Serious obstacles to better relations, such as the Vietnam war, had been removed, and the process of detente was unfolding within a system of concrete negotiations. It was within this favorable climate of improving relations that the Soviet Union and the United States completed preparations for the Apollo-Soyuz Test Project (ASTP). Accordingly, Soviet space politics—and indeed that of the United States as well—were geared to detente: the results contrasted markedly with other times when Cold War tensions intruded and had a spoiling effect.

*b. The Apollo-Soyuz Project: Major political themes.*—Preparations for the Apollo-Soyuz Test Project (ASTP) generated a close interaction among Soviet and American space specialists and cosmo-astronauts. These cooperative efforts were brought to a supreme test during the period of the joint flight, July 15 to July 24, 1975.

The Soviets stressed two major political themes during flight preparations, lift-off, in-flight, and the post-flight period; namely, that ASTP was a supreme example of space cooperation, a goal, they claimed, the Soviet Union had long sought; and that the project was made possible by detente. Indeed, ASTP was represented as a further justification of detente. The conclusions to be drawn from the flood of media coverage was that detente was a valid policy and that it insured peace in the nuclear age, a goal sought by all mankind.

*c. Illustrations of political themes.*



(1) *By the Soviet leaders.*—The Apollo-Soyuz mission was regarded on both sides as a political act.<sup>99</sup> To this extent it was a shared political goal. The joint flight was intended to further the purposes of detente.

Brezhnev set the tone on the Soviet side when he said prior to lift-off on July 15—a statement often repeated: “The Soviet and American spacemen will go up into outer space for the first major joint scientific experiment in the history of mankind. They know that from outer space our planet looks even more beautiful. It is big enough for us to live peacefully on it, but it is too small to be threatened by nuclear war.”<sup>100</sup> On the occasion of the successful docking on the 17th, Brezhnev congratulated the cosmo-astronauts saying:

Since the launching of the first artificial Earth satellite and the first manned space flight, outer space has become an arena of international cooperation. The relaxation of tension and positive changes in Soviet-American relations have created conditions for the first international space flight. New opportunities are opening up for an extensive fruitful development of scientific ties between the countries and peoples in the interests of peace and the progress of the whole of mankind.<sup>101</sup>

And in a congratulatory message to President Ford on the 24th upon the completion of the joint mission, Brezhnev referred to the flight as “an important milestone” in Soviet-American “exploration and use of outer space for peaceful purposes.” Indicating that the successful flight “lays a foundation for the possible subsequent Soviet-U.S. projects in this field,” Brezhnev concluded:

The flight of the “Soyuz” and “Apollo” spaceships is of historic significance as a symbol of the current process of easing of international tension and improvement of Soviet-U.S. relations on the basis of the principles of peaceful coexistence. At the same time, it constitutes a practical contribution to the cause of further development of mutually beneficial cooperation between the U.S.S.R. and the U.S.A. in the interests of peoples of both countries, in the interests of peace on Earth.<sup>102</sup>

(2) *Within ASTP.*—Space cooperation and detente were persistent themes emphasized within ASTP as it developed. “Our flight will be a symbol of peace and cooperation between peoples on our planets,” said Cosmonaut Leonov, commander of Soyuz 19, in the final stage of preparations.<sup>103</sup> “What is going to happen in space in July,” said Dr. Boris Petrov, head of the Interkosmos Council of the U.S.S.R., “is more than a technical operation. It will be a symbol of rapprochement between our peoples.”<sup>104</sup> The “heartly handshake” in space, as Tass termed it, and the joining of metal plaques brought by both ships into a single memorial plaque symbolizing Soviet-American space cooperation, were staged with infinite care to convey the intended message of peace and cooperation.<sup>105</sup>

<sup>99</sup> *The New York Times* said editorially: “The importance of the Apollo-Soyuz mission is primarily political. It is as true now as it was several years ago, when Messrs. Nixon and Brezhnev agreed to the joint venture, that both sides want the most dramatic possible public demonstration of detente in action.” (Detente in space. *The New York Times*, July 16, 1975:37.)

<sup>100</sup> *The New York Times*, July 16, 1975:18 and Moscow, Tass, July 13, 1975.

<sup>101</sup> Moscow, Tass, July 17, 1975.

<sup>102</sup> Moscow, Tass, July 24, 1975.

<sup>103</sup> Moscow, Tass, March 22, 1975. Earlier in an interview, Leonov remarked: “We are all eager for the success of the flight for it will open new great opportunities for international cooperation in space in the interest of all the people of the world.” (Moscow, Tass, Feb. 1, 1975.)

<sup>104</sup> Moscow, Tass, May 22, 1975.

<sup>105</sup> Moscow, Tass, July 18, 1975. “Smile, Tom and Alexei, you’re on the air,” wrote David F. Salisbury of *The Christian Science Monitor* from the Johnson Space Center at Houston. “When Soviet cosmonaut Alexei Leonov and American astronaut Thomas Stafford meet in space and exchange their first historic handshake,” he continued, “the moment will be as wellstaged as a scene in a television drama. Each minute of their joint activities has been carefully arranged. Their meeting was planned as the world’s TV spectacular of the 1970s.” According to Robert Shafer, NASA associate administrator for television, a number of events in the ASTP have been juggled around to ensure that major crew activities were televised. This was “in keeping with the major mission objective to conduct a highly visible demonstration of international cooperation in space,” he said. (Salisbury, David F. Space handshake staged with care. *The Christian Science Monitor*, July 17, 1975:1.)

Finally, in the Soviet view ASTP was to accrue benefits for both sides, not just the Soviet's, as some American critics claimed. These benefits were summed up by Yuriy Marinin, a Czechoslovak scientific commentator who after exploring the allegation of unequal benefits and defending the Soviet position, concluded that the joint flight "will benefit both sides. It will contribute to the cause of peace, international security and detente in relations between the two great powers."<sup>106</sup>

(3) *Within the media.*—The joint flight was a media event. Soviet television, radio, and the press were inundated with space-related material. Space scientists, cosmonauts, science commentators, political leaders—all got into the act. For the first time the Soviet people could view "live" an actual lift-off, in-flight activity, and landing; what they did not view on TV or hear on the radio, they could read in the press. On the day before lift-off James F. Clarity, Moscow correspondent of *The New York Times*, reported that there was a "virtual deluge of information" on the joint flight. For the first time in Soviet space history officials held a full-scale news conference and answered questions, not all friendly ones, in advance of the launching. Clarity suggested that the Soviet people may have been given more information than they could digest.<sup>107</sup>

On July 15, the date of lift-off, *Izvestiya* carried a bright red headline usually reserved for special holidays. It read, "Soyuz-Apollo: Orbit of Cooperation."<sup>108</sup> Perhaps this headline best summed up the central point stressed in media coverage. It could be phrased in the simple formula, detente plus cooperation equals peace and security, not only for the U.S.S.R. and the U.S.A., but also for all mankind. In brief, media content constituted a massive affirmation of Brezhnev's peace program.<sup>109</sup>

d. *Reaction abroad to ASTP.*—Except for China which downgraded and criticized the joint mission, the world reaction, as viewed through Soviet sources, appeared to be highly favorable. A sampling of reaction abroad, as selected and reported in Soviet media coverage, revealed an enthusiastic response with particular stress on relating ASTP to the virtues of space cooperation, detente, and peace. *The New York Times* was reported as acclaiming the flight as evidence of cooperation and peaceful coexistence. Agence France Presse noted that it opened a new stage in the history of space exploration and cooperation between

<sup>106</sup> Marinin, Yuriy. It will not be just a friendly handshake in space; prior to the joint Apollo-Soyuz flight. *Pravda Weekend Supplement* (Bratislava), June 13, 1975:10.

<sup>107</sup> Clarity, James F. Soviet Union publicizing the mission. *The New York Times*, July 15, 1975:22. See also, Osnos, Peter. Mission a Soviet media event. *The Washington Post*, July 15, 1975:A9.

<sup>108</sup> *The New York Times*, July 16, 1975:18.

<sup>109</sup> Aleksandr Piradov, Soviet representative on the U.N. Committee on the Peaceful Uses of Outer Space, termed ASTP, "an event of great political significance." He stressed, in the words of Tass, that "we stand at the threshold of a qualitatively new stage in the advance of cosmonautics: A space bridge of cooperation for the benefit of all mankind." (Moscow, Tass, June 10, 1975.)

Cosmonaut Vladimir Shatalov said the joint flight was "of a great political significance. The pooling of efforts in space exploration calls for mutual trust, mutual understanding and goodwill from both countries. The good beginning made on space routes will contribute to the implementation of joint projects in other fields too." (Moscow, Tass, June 25, 1975.)

Vladen Vereshchetin, Vice Chairman of the Interkosmos Council of the USSR Academy of Science, observed in the periodical *International Life*: "The Soviet Union is ready to continue to do all it can in order to consolidate mutually profitable and equal cooperation with the United States, cooperation that will help to cement world peace. Peace stands to benefit from the forthcoming Soviet-American meeting in cosmic orbit." (Moscow, Tass, July 3, 1975.)

On the day before lift-off Yuriy Zukov wrote: "For a decade and a half Soviet and American space explorers have worked separately. A change in the international atmosphere was essential for them to pool their efforts. A change was needed in the relations between our countries, a change from the state of cold war to accord on peaceful coexistence and business-like cooperation." After quoting from Brezhnev's statement on the spaceflight and its relationship to the avoidance of nuclear war, Zhukov concluded with a comment on strengthening peace through joint Soviet-American efforts. (Moscow, Domestic Service, July 14, 1975.)



both countries. France's weekly *L'Humanite Dimanche* proclaimed the flight as serving the interests of all mankind and noted that the handshake in space has special significance because it symbolized not only new horizons in scientific and technological cooperation but also the persistent efforts by peoples who affirm peace and peaceful coexistence on Earth. The Italian *L'Unita* said the outstanding results were due to the relaxation of tensions that was gaining ground. Poland's *Zycie Warszawy* declared that the summit meetings of Soviet-American leaders on Earth had paved the way for the historic rendezvous of the cosmo-astronauts in orbit. Czechoslovakia's *Pravda* said that the successful termination of the flight was the result of continued efforts by the Soviet Union and other members of the socialist community to hold out for an increased easing of tensions and the peaceful coexistence with states of different social systems.<sup>110</sup>

Though Moscow sought to put the most favorable face on the joint mission, some Americans, Westerners, and the Russian man-in-the-street were critical. One Western diplomat in Moscow saw ASTP as an extravaganza that the Soviet Union wanted to vaunt a nonexistent technological equality with the United States. Another disagreed with this "cynical" interpretation saying that the Soviet man-in-the-street was getting a very heavy dose of friendship with America. One disillusioned Russian expressed the danger that the mission would lull Americans into thinking everything was fine in the Soviet Union when actually nothing had changed. Some visiting American journalists dismissed the flight, in the words of the press report, "as a public-relations job by a money-starved National Aeronautics and Space Administration in the United States." Some diplomats argued the middle position, seeing the flight as a modest but worthwhile gain in opening up a secretive society a little bit more.<sup>111</sup>

Whatever the mix in judgments on the purposes and effects of the joint mission, the overall impression suggests that the Soviet leadership (strongly supported by their American counterparts) went to great lengths to relate the mission to the political purposes of detente and that ASTP indeed appeared to be a great political success.

## 2. Characteristics of Space Relations

### a. Absence of familiar Soviet themes and actions.

(1) *No downgrading of the American space effort.*—Discretion was the most significant characteristic of Soviet space relations with the United States during January–July 1975. Absent were some of the familiar themes and political actions characteristic of Soviet space politics during the most intensive periods of the Cold War. There was no downgrading of American space programs or activities. Allegations of American critics that the Soviet Union gained more from the joint mission than the United States appeared to be met by and large with studied restraint. Such assertions were politely rejected with reminders of the difficulty in getting sufficient congressional appropriations for carrying on the American manned space program, an experience not shared by the Soviet Union, and that the one-sidedness in going forward with ASTP, therefore, really benefited the American side. However, Soviet interests would not suffer, it was said. Both sides would really be the beneficiaries from a joint enterprise that furthered

<sup>110</sup> Moscow, Tass, July 26, 1975.

<sup>111</sup> Pond, Elizabeth. Russians, Americans assess flight benefits. *The Christian Science Monitor*, July 23, 1975:4 and Wilford, John Noble. Joint flight assessed. *The New York Times*, July 24, 1975:58.



the cause of detente, cooperation, and peace.<sup>112</sup> American space officials were cited to dispute the charge of an uneven technological transfer to the Soviet Union.

Sharper rebukes to this allegation took the shape of counter-charges that the critics were opponents of detente. Yuriy Zhukov, a leading Soviet publicist, referred to such critics as "demagogues in the U.S. who stand against scientific cooperation with the U.S.S.R." In reply to such critics, he said: "It is not accidental that U.S. firms are buying ever more licenses for inventions from us."<sup>113</sup>

(2) *No exaggerated claims for Soviet space efforts.*—Nor were there the characteristic exaggerated claims for Soviet space efforts. Restraint and discretion suggest the tones of Soviet statements on space matters.

And for good reason. Soviet space failures would have made any exaggerated claims very difficult, if not ludicrous, to make. The successful 30-day orbital flight of Soyuz 17-Salyut 4 in January-February, the longest Soviet manned space flight, was a major triumph; still, media coverage appeared to be routine and matter-of-fact. However, American observers, pointing to past Soviet failures, opined that the flight would probably restore Soviet self-confidence in their much-troubled Soyuz-Salyut program.<sup>114</sup>

The aborted Soyuz flight on April 5, amid final preparations for the joint Apollo-Soyuz mission, no doubt embarrassed Soviet space officials after this momentary lift in morale by the success of Soyuz 17, and dampened any enthusiasm, if it existed at all, for making exaggerated claims in space. Failure of the mission raised doubts in the West about Soviet technical competence to go forward with the Apollo-Soyuz project, but Soviet space officials, acknowledging that the trouble was caused by an obsolete rocket booster, gave assurances to NASA authorities that this booster would be replaced by a modern one for use in the joint flight.<sup>115</sup>

Any Soviet embarrassment over the Soyuz failure in April must have been overcome by the successful launching on May 24 of Soyuz 18 and its docking with the orbiting station Salyut 4, and by the sending in June two automatic space stations, Venera 9 and Venera 10, in the direction of Venus. Space specialists in Moscow believed that at least in part the stepped-up Soviet activity in space (in addition to these major launchings, the Soviets orbited numerous smaller satellites) was intended to demonstrate competence in a broad range of space systems and dispel the impression that the Soviet space program was in trouble. The Venus probes, the first in three years, served to remind the world that the Soviet Union had made the only successful landing on Venus.<sup>116</sup>

<sup>112</sup> Marinin, op. cit.

<sup>113</sup> Pond, Elizabeth. Soviets hail space cooperation. The Christian Science Monitor, July 15, 1975:1 and 7.

<sup>114</sup> After the disaster of the Soyuz 11 flight in 1971, the second Salyut was reported in 1972 to have broken up in orbit. Salyut 3, which incorporated certain improvements over its predecessors, had greater success. A two-man crew visited the orbital station for two weeks in the summer of 1974, but another crew, launched in August, was unable to dock following the failure of its approach guidance system. In 1974, the United States, by contrast, had flown the longest manned mission of 84 days with a crew aboard the Skylab space station. (The Washington Post, Feb. 10, 1974:A1.)

<sup>115</sup> The Washington Post, April 30, 1975:A21, and the New York Times, May 25, 1975:1.

<sup>116</sup> Osnos, Peter. Soviets seek to overcome space setback, The Washington Post, June 13, 1975:A23, and Moscow, Tass, June 10, 1975. That American space specialists perceived the importance of the Soviet Venus probe was indicated in a statement by Dr. Hans Mark, Director of the Ames Research Laboratory. Deploing a cut-back in space funds by the House of Representatives, Dr. Mark observed that the Soviet Union had launched two more flights to Venus and said: "The Russians are way ahead of us. To them, planetary exploration is a matter of national policy." (Blakeslee, Sandra. Space scientists deplore fund cut. The New York Times, July 21, 1975:26.)

That the Soviets were gaining in self-confidence by these achievements prior to the Apollo-Soyuz mission was evident by the tone of confidence and satisfaction that marked their reports on the Soyuz 18 mission, and the strong implications by Soviet specialists that Salyut 4 would be used by many successive crews manning the orbital station in shifts ranging from a few weeks to months.<sup>117</sup> To the discerning observer the Soviets could also be seen to draw confidence from the belief that by participating with the United States in a joint mission on the scale of Apollo-Soyuz they were able to demonstrate effectively that they had achieved parity in space.

Thus, setbacks in space had made it difficult for the Soviets to flaunt their successes as they had done in the past. But in keeping with the spirit of détente and the style of the Brezhnev regime, they were able to make their point of competence in space and parity with the United States by solid and highly visible achievements.<sup>118</sup>

(3) *Easing restrictions on secrecy.*—Evidence of an improving Soviet attitude in space relations was apparent in the easing of restrictions on secrecy. In the course of preparations for the Apollo-Soyuz mission the Soviets admitted, albeit reluctantly, American officials and astronauts into areas of space work heretofore held in the greatest secrecy. Preparations had apparently gone smoothly until the Apollo crewmen insisted on touring the Tyuratam Cosmodrome, inspecting the Soyuz launch pad, and visiting the Soyuz spacecraft. Air Force General Thomas P. Stafford, commander of the Apollo spacecraft, said: "I never fly on a spacecraft I haven't been in on the ground." Reluctantly, the Soviets agreed to the visit,<sup>119</sup> in conformance, it might be added, to the principle contained in the April 6, 1972 agreement on the joint flight. NASA project officials had uniformly insisted and gained agreement that American crews had to be familiar with the actual Soyuz that would participate in the mission.<sup>119a</sup>

On their four visits to the Soviet Union the astronauts also visited Star City, the cosmonaut training center 30 miles outside Moscow. Americans also spent hours touring and working at the new space control center at Kaliningrad, near Moscow. As Astronaut Donald K. Slayton said in Moscow, "We have seen everything we need to see to fly this mission effectively."<sup>120</sup>

Such openness along with a willingness to permit "live" TV coverage of the mission stirred favorable comments in the West. One optimistic Western diplomat in Moscow contended that the mission as a whole was significant. "This whole system has been built on a threat—a threat from outside to destroy the country," he said. "It's a major step to take away the enemy." He argued that the decision to let down secrecy barriers and open up the Soviet space program as much as the Soviets did could have wider effects in this "very cautious, bureaucratic system." "When the genie gets out of the bottle," he suggested, "it's very hard to put it back."<sup>121</sup>

<sup>117</sup> Browne, Malcolm W. Salyut 4 mission nearing record. The New York Times, June 23, 1975:1.

<sup>118</sup> The Russians seemed willing to go to some lengths to insure the success of ASTP, wrote John Noble Wilford from the Houston Space Center. "For they looked upon the mission, as among other things," he said, "a means of gaining an apparent parity with the United States in space technology—a parity at least in the eyes of the Russian people, if not the experts." (Wilford, John Noble, Joint flight assessed. The New York Times, July 24, 1975:58.)

<sup>119</sup> O'Toole, Thomas and Peter Osnos. Detente's space spectacular. The Washington Post, July 13, 1975: A6.

<sup>119a</sup> Information provided by NASA.

<sup>120</sup> The Washington Post, July 13, 1975:A6.

<sup>121</sup> The Christian Science Monitor, July 23, 1975:4.



One Soviet science writer was similarly optimistic. "This secrecy . . . bothers us too," he said, adding, "But I think this will change. As cosmonauts train with your astronauts, as our people go more and more and see how you do things . . . I think they will begin to loosen up." Another prophesied: "I cannot be sure. But I begin to see a few green shoots in the frozen ground. . . . If we cultivate these, if we don't expect too much but cherish each sprout, I think eventually we will have a garden." The Apollo-Soyuz information flow, said Robert C. Cowen, science writer for *The Christian Science Monitor*, "may be the first flowering of that garden."<sup>122</sup>

*b. Presence of familiar Soviet themes and actions.*

(1) *Identifying space success with the CPSU and Soviet government.*—Familiar themes and actions of past Soviet space politics were evident in the period under review, notably the identification of success in space with the leadership of the CPSU and the Soviet Government. At the conclusion of the successful mission of Soyuz 18, for example, Brezhnev, Podgorny, and Kosygin on behalf of the CPSU, the Presidium of the Supreme Soviet of the USSR, and the USSR Council of Ministers, respectively, sent greetings to Cosmonauts Klimuk and Sevastyanov, saying that they had "delighted greatly their compatriots and millions of people throughout the world." "Our glorious cosmonauts," they went on, "manifested all-round skill, lofty moral qualities, courage and heroism." In a self-affirming statement, the leaders said that the mission confirmed that the creation and flight of orbiting scientific stations using relay crews "is one of the most important directions for man's penetration into space and a decisive means for the further profound study of the universe and the understanding of our planet." "Your feat," the message continued, "is a splendid example of selfless service to the cause of communism and of the accomplishment of the tasks of our Soviet homeland." The Soviet leaders congratulated all participants in the operation, saying that they "made a worthy contribution to the accomplishment of the majestic tasks outlined by the 24th CPSU Congress."<sup>123</sup>

In response the cosmonauts, scientists, engineers, and technical workers who participated in the Soyuz 18-Salyut 4 mission thanked the Soviet leaders for the constant support of their work and they dedicated "the successful implementation" of the mission which had "important scientific and national economic significance, to the forthcoming 25th Congress of the CPSU." Reaffirming the Party directive of linking space to the practical needs of the nation's economy, the authors assured the CPSU Central Committee and the Soviet Government that they would apply all their knowledge and strength to further developing space technology "in the interests of science and all branches of the national economy."<sup>124</sup>

Significantly, Cosmonaut Leonov, commander of Soyuz 19, directed a message of gratitude to the CPSU CC and to Brezhnev personally. "We are greatly moved by the warm words of Leonid Ilich," Leonov said, "and we shall be working ever better. One is moved to say much to Leonid Ilich in answer to his warm words and we, the cosmonauts, will express our sincere feelings of gratitude to him once more when we see him upon return to Earth."<sup>125</sup>

<sup>122</sup> Cowen, Robert C. Soviet press in a new "orbit" too. *The Christian Science Monitor*, July 16, 1975:21.

<sup>123</sup> Moscow Domestic Service, July 26, 1975.

<sup>124</sup> Moscow, Tass, July 27, 1975.

<sup>125</sup> Moscow, Tass, July 18, 1975.



In these and other exchanges the Soviet leadership drew to themselves and Soviet political institutions credit for Soviet success in space and by implication, if not by direct reference, conveyed the message in almost a paternal way that the prime mover in Soviet space achievements was the CPSU and its leadership in the party and government.<sup>126</sup>

(2) *Use of cosmonauts and scientists.*—Similarly, the Soviet leadership called upon cosmonauts and scientists as spokesmen of the space community to affirm the wisdom and validity of the Party's judgment and decisions on space affairs, to play an educational role in communicating with the Soviet public, and in the international field to act as representatives of the Soviet Union. In brief, they placed their prestige and authority in the service of the party and state.

Accordingly, Cosmonaut Shatalov credited the staging of the Apollo-Soyuz experiment to the efforts of the CPSU and the Soviet Government in pursuing the policy of detente. Stressing a theme central to the Soviet political perception of this mission, Shatalov emphasized not only the important technical and scientific aspects of the flight but also the mission's "great political significance;" namely, furthering the principle of peaceful coexistence and international space cooperation. "The pooling of efforts in space exploration," he said, "calls for mutual trust, mutual understanding and goodwill from both countries." Shatalov added, "The good beginning made on space routes will contribute to the implementation of joint projects in other fields too."<sup>127</sup> In a detailed discussion of the use of orbital stations and their role in future Soviet space exploration, space scientist Boris Petrov quoted Brezhnev directly, in what appears to be a mutually affirming statement, as saying, "Soviet science sees the creation of orbital stations with changes of crew as man's highway into space."<sup>128</sup>

Articles such as this by Academician Boris Petrov and other scientists played an educational role in communicating with the Soviet people on space matters. Within the mass of information flowing through Soviet media channels on the occasion of the Apollo-Soyuz mission were articles, interviews, and statements by space scientists. In part they were instructive for the Soviet people as in the case of an article by Academician G. I. Petrov appearing in *Pravda*; in part they were an authoritative affirmation of decisions taken as in the case of Dr. Kirill Kondratyev, corresponding member of the USSR Academy of Science and a leading Soviet space specialist, who described the mission as "a memorable landmark in the history of international cooperation and an assurance of progress in outer space exploration for the benefit of the whole of mankind."<sup>129</sup>

<sup>126</sup> That the Soviet leaders are anxious to establish a close identity with the cosmonauts and their success in space was indicated, to the embarrassment of some Soviet authorities in Washington, by an apparently "faked" photograph, showing Brezhnev talking with Leonov and apparently Soviet envoy to the U.S. Anatoliy Dobrynin in the background. While one Soviet specialist attributed the picture to a bad retouching job and one previously taken, others subscribed to the "fake" theory, noting that Leonov's head seemed far too small for his body. The picture was reproduced in Moscow's major newspapers on Tuesday, presumably July 22. The problem is Leonov and his fellow cosmonaut Valeri Kubasov did not land in the Soyuz until almost 2 p.m. Moscow time on Monday, July 21, nearly 3,200 km away in Soviet Central Asia. According to wire service accounts, they were then taken to the nearby town of Arkalyk and from there 320 km by helicopter to the cosmodrome at Baykonur. Baykonur is about 2,400 km from Moscow, and it would appear to have been impossible for the cosmonauts to have been in Moscow in time to have a picture taken and developed for Tuesday's newspapers. Wire service accounts did not place the cosmonauts in Moscow until Wednesday. Dobrynin was in Washington all week long. (Weintraub, Richard M. Brezhnev picture questioned *The Washington Post*, July 27, 1975:A4.)

<sup>127</sup> Moscow, Tass, June 25, 1975.

<sup>128</sup> Petrov, B. N. Orbits of the future. *Trud* (Moscow), Feb. 5, 1975:3.

<sup>129</sup> Petrov, G. I. Interview: into the expanses of the universe. *Pravda* April 12, 1975:3, and Moscow, Tass, July 19, 1975.

Finally, cosmonauts continued to play a key public relations role. Media attention given to the visits of the Apollo-Soyuz cosmonauts to the Soviet Union and the United States were prime illustrations of the political uses of spacemen by both countries. Furthering the cause of detente and space cooperation was clearly a commonly shared objective.

Less dramatic but still illustrative was the selection of Valentina Nikolayeva-Tereshkova as the Soviet representative to the United Nations conference in Mexico City in June-July 1975 held as part of the commemoration of International Women's Year. Nikolayeva-Tereshkova is Chairman of the Soviet Women's Committee and has the unique distinction of being the only spacewoman in the world. Upon returning to the Soviet Union, Nikolayeva-Tereshkova gave a report of the conference in *Pravda*. She described the "constructive cooperation" between the delegates of the socialist countries and those from the developing countries of Asia, Africa, and Latin America; noted that the "firm and principled" position taken by the delegates of the socialist states, with the support of those from states adhering to a "progressive course," ensured the success of the conference to a considerable degree; and finally observed that the Communist Chinese delegation, which "stubbornly tried to split the participants," failed and "actually found itself in isolation."<sup>130</sup>

Probably few countries could have put forward a representative with such high prestige value and visibility. Thus as spokeswoman for the foreign policy interests of the Soviet Union, Nikolayeva-Tereshkova had great opportunity to make a favorable impact and to further the interests of her country. On its part the Soviet Union had a unique instrument for pursuing its political purposes.

(3) *Limits to openness*.—It is true that during the Apollo-Soyuz mission the Soviets lowered the barriers of secrecy, but with serious limitations. The Apollo astronauts saw secrecy, notably the withholding of information, as a prime problem to be solved in the entire undertaking. "They just have it engrained in them," said Slayton; "they don't tell anything to anybody except on a need-to-know basis."<sup>131</sup> Even when the astronauts were permitted to visit the Tyuratam Cosmodrome, they were flown in at night and out the next night. Questions had to be limited to the launching pad, rocket, and spacecraft they would be on. Requests to see the underground block-house were turned down.<sup>132</sup> Moreover, American newsmen were not permitted to witness the liftoff of Soyuz 19.<sup>133</sup>

Nor were Americans given any satisfaction when making inquiries about future space plans, particularly regarding possible cooperative experiments to follow on the success of ASTP. Such inquiries were politely but firmly turned aside, pending the results of discussions planned late in 1975.<sup>134</sup>

<sup>130</sup> Moscow, Tass, August 9, 1975.

<sup>131</sup> Osnos, Peter. Astronauts see Soviet space pad. The Washington Post, April 30, 1975:A21.

<sup>132</sup> O'Toole, Thomas and Peter Osnos. Detente's space spectacular. The Washington Post, July 13, 1975:A6.

<sup>133</sup> The New York Times, July 15, 1975:37.

<sup>134</sup> Wren, Christopher. Soviets expected to push long-term lab in orbit. The New York Times, July 28, 1975:34. Wren observed that the Russians were not expected "to adopt a lower profile following the highly visible venture that has brought them new prestige in space."



An indication of just how tight Soviet security is on space affairs was revealed by Robert C. Cowen, science writer of *The Christian Science Monitor*. When American science writers toured the Soviet Union in 1972 as the result of an exchange arrangement, they found that they often knew more about the Soviet space program than did their Soviet counterparts. Not only were goals, dates, and results of many missions withheld, but details on facilities and missions, widely known in the West, were unknown to many of the Soviet science writers.<sup>135</sup>

(4) *The rituals of space*.—The rituals of space were carefully attended to, and integrated into the ceremonials were the familiar themes of peace, detente, cooperation, for the good of mankind, space exploration for the needs of the national economy, the unique communist virtues of the cosmonauts, etc. Podgorny awarded the cosmonauts of Soyuz 18 and 19 Orders of Lenin and the Second Gold Star medals to the Heroes of the Soviet Union. They were honored in a Kremlin reception, in Podgorny's words, as "our glorious heroes, the courageous conquerors of space." On behalf of the Soviet leadership Podgorny thanked the cosmonaut-heroes for having fulfilled the tasks of the Party and people and for having received the highest awards of the state. In response the cosmonauts, as expected, thanked the Soviet leadership for the high appraisal of their labor in space and declared their readiness to carry out any task assigned to them by the Soviet motherland.<sup>136</sup>

While certain aspects of the space ritual were apparently not repeated, one formality was added that no doubt will be followed again should the Soviet Union and the United States decide to stage another joint manned mission; namely, the signing of the document of readiness. On May 22, upon completion of the final preparatory stage for the flight, NASA Deputy Administrator Dr. George M. Low and acting President of the U.S.S.R. Academy of Sciences Vladimir Kotelnikov met at the Presidium of the Academy. Also present were the directors of ASTP, officials of the Interkosmos Council, heads of mixed working groups, and commander of the Soyuz crew, Cosmonaut Leonov. Project directors Glynn S. Lunney of NASA and Konstantin D. Bushuyev, his counterpart in the Soviet space community, reported on the completion of the preparatory stage of the mission. Presumably, the signing of the document of readiness was to symbolize the formal authorization for the mission to go forward to completion.<sup>137</sup>

That the rituals of space play an important role in Soviet space politics is apparent by the value that the Soviet leadership assigns to them. The awards and public ceremonies are officially created symbols of national recognition of achievement. They bring added honor, respect, and prestige to space exploration, and to the cosmonauts, space scientists, and technical workers. But most important the rituals of space are directed towards the greater edification of the CPSU and the Soviet state.

<sup>135</sup> The Christian Science Monitor, July 16, 1975-21. The New York Times observed editorially that in the Apollo-Soyuz mission, "there is evidence of the distance both countries still have to go before they reach genuine friendship and trust. The place from which the Soyuz rocket took off yesterday—the city of Leningrad—is not indicated on any unclassified Soviet maps, while the public references to it as Baikonur actually refer to a place 200 miles away. If it were not for American spy satellite pictures of the Soviet Union, this country might not even know the exact coordinates of the point from which the Soyuz craft took off." The Times termed the Soviets "fanatical" on security. (Detente in space. The New York Times, July 16, 1975: 37.)

<sup>136</sup> Moscow Domestic Service, August 25, 1975.

<sup>137</sup> Moscow, Tass, May 22, 1975.



### 3. Political Significance

*a. Strengthened detente.*—A review of the period January-July 1975 suggests four generalizations relating to the connection between politics and space exploration. First, it seems evident that detente was a precondition to space cooperation on the scale of the Apollo-Soyuz joint mission; and to this extent the mission was, as Brezhnev said in his congratulatory message to President Ford, "a symbol of the current process of easing of international tension and improvement of Soviet-U.S. relations on the basis of the principles of peaceful co-existence."<sup>138</sup>

However, the Apollo-Soyuz mission may have been more than a symbol: in circular fashion the mission appears to have served the positive purpose of re-inforcing a favorable environment for expanding detente. But within limits, since space cooperation lies essentially on the periphery of outstanding problems in Soviet-American relations, and the hard, central core of differences in the area of military detente remain intact.<sup>139</sup>

*b. Advancing the principle of space cooperation.*—Despite the difficulties in achieving military detente, the principle of space cooperation has no doubt been given a formidable push forward by the Apollo-Soyuz mission. As noted in the preceding sections, this was the main thrust of Soviet statements on the mission. President Ford expressed the American view when he said on the occasion of the Soyuz 19 launching, "This space mission . . . demonstrates that the United States and the Soviet Union are prepared to cooperate in a common endeavour of great significance, importance and complexity."<sup>140</sup>

*c. Soviet gains in prestige.*—That the Soviet Union gained in prestige as a result of the successful joint flight is apparent from reactions at home and abroad. To have the demonstrated technical and scientific capability of participating in such a complex operation with a space power so advanced in space science and technology as the United States cannot have escaped the attention of an attentive world. What no doubt added to the global popular appeal of the mission was the visual proof that the two superpowers with basically conflictual social systems and many diverging, national interests could indeed cooperate in such a dramatic undertaking on a common basis of detente.

*d. Intensity and depth of Soviet space commitment.*—Finally, Soviet space activities in this period suggest the depth and intensity of the Soviet commitment to space exploration. On visiting the Soviet space center near Tyuratam, Astronaut Stafford reported that from the amount of construction under way, the Soviets were "dedicated" to pursuing the goals of their space program.<sup>141</sup>

<sup>138</sup> Moscow, Tass, July 24, 1975.

<sup>139</sup> *The New York Times* warned editorially against exaggerated expectations from ASTP. It concluded an analysis under the heading, "Detente in Space": "The Soyuz-Apollo mission is a major step forward toward greater cooperation between the two great countries involved. But it is a limited island of intimacy in the great, troubled ocean of Soviet-American relations where there are also areas of deep political cleavage, notably now in Portugal and the Middle East [not to mention SALT II and MBFR negotiations]. The danger is that the Soyuz-Apollo mission might become a sort of Potemkin village in space, an event which could arouse unrealistic expectations here. By all means let there be progress in detente; but the crucial tests at least in the near future, will take place here on earth." (*The New York Times*, July 16, 1975: 37.)

<sup>140</sup> Moscow, Tass, July 15, 1975.

<sup>141</sup> Osnos, Peter. Astronauts see Soviet space pad. *The Washington Post*, April 30, 1975: A21.

The American astronauts said that they were impressed by the "tremendous effort" the Soviet Union was putting into its space effort.<sup>142</sup>

Despite restrictions placed on their movements by the security-conscious Russians, American space specialists had seen enough, in the words of one report, "to convince them that the Soviet Union is continuing to put vast resources into its space effort." Referring to assembly sheds that the visiting party saw scattered throughout the area near the Baykonur cosmodrome, Astronaut Slayton said, "I'd be surprised if they weren't working on some advanced technology . . . but we didn't see it."<sup>143</sup>

Moreover, published statements by Soviet space scientists and cosmonauts suggest extension rather than retrenchment of the Soviet space commitment.

Given the Soviet inclination to view such scientific enterprises in a political context, all of this suggests the high political value that the Soviet leadership places on space exploration.

### III. SOME GENERALIZATIONS

#### A. CONTROLLING EFFECT OF THE POLITICAL ENVIRONMENT

Soviet space politics with respect to the United States since 1971 suggest three broad generalizations. The first is that the governing factor in space relations is the political environment within which they function. Simply stated, an environment of tension produces negative responses; one of detente, positive responses. In both cases space exploration is manipulated to achieve certain political purposes. The Apollo-Soyuz project probably would have been inconceivable in 1971; in 1975, it was a logical outgrowth of detente; it made political sense. In large measure, therefore, the future of Soviet space politics will be determined, as in the past, by the character of Soviet-American political relations.

#### B. PREDOMINANCE OF THE CPSU LEADERSHIP

Secondly, the CPSU, the Soviet Government, and their leadership hold the commanding position in Soviet space politics. The rituals of space are organized around the glorification of the Soviet system, its leadership, and ideology. Collectively, they are the seminal source of all energy and promise for the future; they are the center of the Soviet universe. Thus, the future of the Soviet Union in space is not necessarily the decision of the scientists and engineers but of the political leadership and its perception of the role of space exploration in augmenting the power of the Soviet state and in furthering the purposes of its ideology.

<sup>142</sup> Clarity, James F. U.S. astronauts visit Soviet base. *The New York Times*, April 30, 1975: 5.

<sup>143</sup> *Newsweek*, v. 85, May 12, 1975: 85.

### C. A PERSISTENT COMMITMENT TO SPACE EXPLORATION

Finally, what emerges most prominently from the data presented here is the intensity of the Soviet commitment to space exploration. If the Soviets are scaling down their ambitions in space, it is not evident from the directives of the 24th Congress of the CPSU, in the statements of the Soviet leadership in politics, science, and cosmonautics, and in what has been demonstrated in the first seven months of 1971 and 1975. Space exploration had been an essential power factor in Soviet international politics during the bombastic, risk-taking era of Khrushchev's missile diplomacy; it remains so in the more restrained era of detente under Brezhnev; for as a handmaiden of Soviet power in the Space Age, it has been shown to be a proven, not a wasting asset.



## CHAPTER TWO

### ORGANIZATION AND ADMINISTRATION OF THE SOVIET SPACE PROGRAM

By Francis T. Miko\*

#### I. INTRODUCTION

##### A. PURPOSE OF CHAPTER

Testifying before Congress, Dr. Malcolm R. Currie, Director of Defense Research and Engineering at the Department of Defense said:

The Soviet space program is a large, broadly oriented, stable program. In order to put this program in context, I would like to point out that the Soviets are continuing to expand their base of scientific manpower, the breadth and depth of technological investigations and the improvement of research and test facilities. . . . As I see it, the Soviet space program is an integral part of their evolving national posture and it is neither being "overemphasized nor "starved" relative to manpower, facilities or funds.<sup>1</sup>

The aim of this chapter is to determine the organizational and administrative structure of the Soviet space program on the basis of the open literature. An effort is made to describe key organizations and groups involved in the program and to assess their interrelationship. This chapter attempts to discover where decisions on space originate and to find the channels through which they pass to the operational level.

##### B. PROBLEMS OF SOVIET SECRECY AND INADEQUATE INFORMATION

Soviet secrecy is an obstacle to research on many facets of that country's development. Subject matter with any strategic implications or which is deemed sensitive is covered by all-pervasive secrecy.

Soviet officials regard the civilian and military aspects of their space program as sensitive. Thorough Government censorship extends to all areas related to the organization and administration of the program. The result is that very little information on organization can be gleaned from the available Soviet literature.

The open Western literature does not reveal a great deal more on the Soviet space organization. Since there exist no detailed conclusive studies on the organization and administration, one can at best try to piece together the fragments of information.

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<sup>1</sup> U.S. Congress. Senate. Committee on Aeronautical and Space Sciences. NASA Authorization for Fiscal Year 1975. Hearings . . . March 18 and 20, 1975: Part 2. Washington, Govt. Print. Off., 1975, p. 788.

## C. SPECULATIVE NATURE OF PRESENTATION

Since the available Western literature on the Soviet space program is largely speculative and sometimes contradictory, the effort here is to present the various views put forth and to synthesize them where possible. The arguments are viewed against what is known about Soviet organization for decision-making in general.

Clearly, the Soviet Union has a general organizational method. It seems a logical assumption that the administration of the space program should not diverge very far from the established Soviet pattern of doing things. Since a fair amount is known of Soviet operations in some less strategic areas, certain inferences can be made with respect to the space program from those operations. Caution must be exercised, however, as there is often to be found an informal functional organization of Soviet endeavors which is different from, and at the same time more significant than, the formal organization.

## II. GENERAL SKETCH OF SOVIET DECISION-MAKING PROCESS

## A. THE COMMUNIST PARTY

1. *The Party Congress*

The Communist Party of the Soviet Union is the dominant force in all spheres of Soviet life. While formally outside the Government structure, the Party exercises control not only from the top, but at all levels through a centralized hierarchical organization that parallels the Government and social structure at all levels down to local enterprises and institutions. The Party Congress which meets at irregular intervals, every few years, is formally the highest Party organ. However, in practice the Congress has very little power and serves chiefly as a forum in which the leadership announces the launching of major policies.

2. *The Central Committee*

The Central Committee is elected by the delegates to the Party Congress to function between Congresses and act as the highest permanent party institution. Its membership (241 full members and 155 candidate members) is still too large for effective decision-making. One of its major functions is to elect the Politburo and Secretariat which are the real top decision-making bodies in the Soviet Union. It also ratifies Politburo decisions. Central Committee election of Politburo members and ratification of decisions are still primarily a pro forma function. In most instances, approval of Politburo decisions and changes is automatic and unanimous. Nevertheless, the Central Committee is significant in that its membership for the most part represents the political elite of the Soviet Union and it exercises control over policy implementation.

The Central Committee is divided into departments which for the most part parallel the Government structure at the ministry level. These departments have oversight duties over the corresponding ministries in the Government. The departments also provide information to the Politburo.

### 3. *The Politburo*

The Politburo, together with the Secretariat of the Party, exercises supreme power in the Soviet Union. Because of overlapping membership in these two highest bodies, their activities are well coordinated.<sup>2</sup> The Politburo presently has 14 full (voting) members and 7 candidate (non-voting) members. The Politburo selects and removes its own members and those of the Secretariat, even though formal authority for this function rests with the Central Committee. The Politburo establishes all major policy guidelines and acts as the final arbiter among the competing interest groups in the Soviet Union.

The power structure within the Politburo has varied over the years. Under Joseph Stalin, there was genuine one-man dictatorship, and the Politburo itself, became a virtual rubber stamp body. Since Stalin's death, there have been differing degrees of collective leadership. Both Nikita Khrushchev and Leonid Brezhnev were able to carve out dominant positions for themselves, but neither has been able to achieve absolute authority.

### 4. *The Secretariat*

The influence of the Secretariat parallels that of the Politburo. Among its duties are the appointment of major Party, Government, and other officials. The Secretariat chooses the candidates that are to run in elections (for the most part unopposed). It carries out oversight duties to assure that Party policy is being implemented at all levels. Despite the authority wielded by the Secretariat, it cannot be considered a separate power center, competing with the Politburo, due to the factor of overlapping membership. Some of the individuals who head key departments of the Central Committee are also members of the Secretariat.

### 5. *Other Party Units*

From the Central Committee down there is a vast network of Party organizations which assures the Communist Party of control over Soviet society. These organizations are to be found at the Union Republic, district and local levels. The close to 500,000 primary Party cells are at the bottom of the hierarchy. These are established in individual residential neighborhoods, factories, army units, schools, research institutions, and anywhere that there are three or more Communist Party members.

## 3. THE GOVERNMENT STRUCTURE

### 1. *The Supreme Soviet*

In principle the Soviet Government is completely separate from the Communist Party apparatus. In fact, once again due to the phenomenon of overlapping membership, the Government leadership consists entirely of Party members and many key Government officials also hold major positions within the Party hierarchy. The

<sup>2</sup> Currently, there are six members of the ten-man Secretariat who are also members or candidate-members of the Politburo. They are General Secretary L. I. Brezhnev, P. N. Demichev, A. P. Kirilenko, F. D. Kulakov, M. A. Suslov and D. F. Ustinov.



Soviet Government has no independent authority, but is the mechanism through which Party policies are implemented.

The Supreme Soviet is the Soviet legislature and in theory the highest organ of the Soviet Government. It consists of two equal houses—the Soviet of the Union and the Soviet of Nationalities. Elections to the Supreme Soviet are held every four years and a single list of candidates is nominated by the Communist Party. Between the infrequent sessions of the Supreme Soviet, its Presidium functions on its behalf. The Chairman of the Supreme Soviet Presidium (presently Nikolay Podgorny) also acts as titular Chief of State. The Supreme Soviet plays no significant role in the actual Government of the country. Election to the body is sometimes a ceremonial honor bestowed on political figures, scientists, cosmonauts, artists and others.

## 2. *The Council of Ministers*

The Council of Ministers is the most significant organization of the Soviet Government. Its approximately 100 members are nominally appointed by the Supreme Soviet and theoretically they are responsible to that body. In practice the Council of Ministers is selected by and responsible directly to the Central Committee of the Communist Party. The Chairman of the Council of Ministers (presently, Alexey Kosygin) is also called the Premier or Prime Minister of the Soviet Union.

Directly under the Council of Ministers are the ministries, State Committees, and other bodies which carry on the day-to-day tasks of Soviet Government. The Soviet Academy of Sciences also falls under the supervision of the Council of Ministers. Below the ministries are the industrial branches and the institutions which fall within the jurisdiction of each.

# III. ORGANIZATION FOR DECISION-MAKING ON SPACE AFFAIRS

## A. AN OVERVIEW

The Soviet Union has never released an organizational chart of its space program. Given the degree of official secrecy surrounding the program, certain logical assumptions cannot be documented. One such assumption is that the space organization follows basic Soviet administrative patterns. There may be as many as 600,000 people working directly on the space program or in space related activities.<sup>3</sup> Such a massive organization would appear to require a high degree of coordination. However, it cannot necessarily be concluded that Soviet space administration is a rational streamlined decision-making mechanism. In an earlier study of the program, Leonard N. Beck, in fact, found the opposite in some areas; namely, administrative anarchy.<sup>4</sup>

Western observers have occasionally wondered how the program can function effectively in view of the overlapping jurisdictions between Party and Government, the participation of a myriad of institutions

<sup>3</sup> Sheldon, Charles. S. II. *United States and Soviet Progress in Space: Summary Data through 1974 and a Forward Look*. Washington, U.S. Library of Congress, January 13, 1975, p. 21. (Congressional Research Service multilith no. 75-18 SP).

<sup>4</sup> U.S. Congress. Senate, Committee on Aeronautical and Space Sciences. *Soviet Space Programs, 1962-1965: Goals and Purposes, Achievements, Plans, and International Implications*. Staff report. Washington, Govt. Print. Off., 1966, p. 153.

with no clear hierarchical relationship, and differences that exist everywhere between formal organizational structures and the loose informal working structures. Yet the results show that while the space organization may not function with optimum efficiency, it at least functions reasonably well. Two aspects of the Soviet governmental system may help to explain the success of the space program.

The first such factor relates to the multiple responsibilities assigned to leading individuals. Where there is no clear link between organizations involved in the same program, a link may often be found in the person of their leadership. When two seemingly unrelated organizations are headed by the same individuals, coordination seems relatively simple. The outsider trying to understand Soviet organizations is faced with a difficulty arising from this factor. Once a person is identified as a key figure in a given program, it is still not always possible to identify the associated organization. Fallacious conclusions can be drawn about the importance of a specific institution in an organization such as space on the basis of its individual membership.

The second such factor is what Leon Trilling, in an earlier congressional study calls the principle of single responsibility, operating throughout the Soviet system. Where there is no clear institutional responsibility, there often exists, formally or informally, a leader who will be held accountable for the success or failure of the program at any level.<sup>5</sup> This factor of single responsibility would seem to imply a fairly strict chain of command operating in the Soviet space organization.

#### B. ROLE OF THE COMMUNIST PARTY

As in all areas of Soviet policy, the Communist Party asserts its leadership over the space program. Top-level decisions on space are probably made in the Politburo. Control over implementation of the decisions is probably the responsibility of the appropriate departments in the Central Committee. Soviet leader Brezhnev underscored the leading role of the Party in science in a speech marking the 250th anniversary of the Soviet Academy of Sciences. He said:

... Comrades, in the future you will have to work even more, more persistently and more effectively. We have no intention of dictating to you the details of research topics and the ways and means of research—that is a matter for the scientists themselves. But the main directions of the development of science, the main tasks that life poses, will be determined jointly.<sup>6</sup>

The Politburo in its capacity as the highest policy-making body in the Soviet Union is responsible for establishing goals and priorities, setting up the organizational framework and funding of the space program. It presumably seeks the advice of experts in the field, before arriving at decisions.

The main directions of Party policy on space can be publicized in a variety of ways. A platform sometimes used to launch major programs is the Party Congress, held at irregular intervals. At the 24th Congress of the Communist Party of the Soviet Union (CPSU), convened in 1971, for example, directives were issued to organize scientific work in outer space "in the interest of development of long-distance telegraph

<sup>5</sup> U.S. Congress, Senate, Committee on Aeronautical and Space Sciences, *Soviet Space Programs: Organization, Plans, Goals, and International Implications*. Staff Report. Washington, Govt. Print. Off., 1962, p. 62.

<sup>6</sup> Academy of Sciences' 250th Birthday. Speech by L. I. Brezhnev. *Current Digest of the Soviet Press*, v. 27, October 29, 1975: 3.



and telephone communications, television, weather forecasting, the study of natural resources, geographical research, etc., with the help of automatic and piloted spacecraft".<sup>7</sup> The functions of the Party Congresses for the most part do not include the establishment of policy. They serve generally as a forum for unveiling policies that have already been decided by the leadership.

Final responsibility on space matters within the Politburo rests with the *de facto* Soviet leader. The degree of the Soviet leader's personal involvement in space decisions has probably varied over the years.

Observers have pointed out that at the time of the launching of the first Soviet Sputnik in 1957, Soviet Premier Nikita Khrushchev may not have immediately grasped the full political significance of the achievement, although he certainly already supported space research. Upon the successful completion of the Sputnik mission, Khrushchev's initial statements seemed to lack a great degree of enthusiasm. A few weeks later Khrushchev's tone changed. He heaped praise on the individuals who accomplished the feat; he was boastful of Soviet leadership in the space field; and he took personal credit for the success of the Soviet space program. He was probably responding to the Western reaction of amazement and disbelief.<sup>8</sup> Khrushchev's level of personal participation in decision-making on space may have grown after his initial lesson in the propaganda value of space accomplishments. At the awards ceremony following Gagarin's successful mission as the first man in space in 1961, Khrushchev emphasized his personal role in the Soviet space program. He was presented the first and highest medal of honor for the successful flight. Also among those most prominently honored was Leonid Brezhnev, then the Soviet President, who may have had some responsibility in the administration of the space program within the Politburo.<sup>9</sup> Nikita Khrushchev allegedly took a very active part in formulating space policy decisions in 1963, when it was reportedly decided to accelerate the program in response to American successes.<sup>10</sup>

Following Khrushchev's ouster from the Politburo in 1964, his successor, Leonid Brezhnev, initially appeared to be moving in the direction of scaling-down or de-emphasizing the Soviet space program. In his statement welcoming back Cosmonaut Komarov and his crew from their successful Voskhod flight, Brezhnev said in an apparent criticism of his predecessor and of the United States:

We are pleased of course, that our country is ahead in the exploration of space. But we Soviet people do not regard our space exploration as some kind of race. The spirit of reckless gambling in the great and serious matter of exploring and mastering space is deeply alien to us.<sup>11</sup>

According to American intelligence estimates, the person within the Politburo today with primary responsibility for space matters is candidate member D. F. Ustinov.<sup>12</sup> It may be some indication of the thrust of the Soviet space program that Ustinov's other primary

<sup>7</sup> Sevast'yanov, V. and Y. Faddeyev. *Soviet Cosmonautics and Scientific and Technical Progress*. Space World, v. 1, September 1972: 21.

<sup>8</sup> For an account of Khrushchev's reactions see Daniloff, Nicholas, *The Kremlin and the Cosmos*. New York, Alfred A. Knopf, 1972, p. 66.

<sup>9</sup> *Ibid.*, p. 74. See also: Dornberg, John. *Brezhnev: The Mask of Power*. New York, Basic Books, Inc., p. 163.

<sup>10</sup> Oberg, James E. *The Voskhod Programme: Khrushchev's Folly*. *Spaceflight*, v. 16, April 1974: 147.

<sup>11</sup> Dornberg, *op. cit.*, p. 186.

<sup>12</sup> U.S. Central Intelligence Agency. *Reference Aid: CPSU Politburo and Secretariat*, September 15, 1974. (A (CR) 74-25).



duties are in the areas of defense industry and foreign military aid. He also has secondary responsibilities in the field of security.

Ustinov is a graduate of the Professional Technical School and the Leningrad Military Mechanical Institute. He has been a candidate member of the Politburo since 1965 and a member of the Central Committee since 1952. He has served in the Government as a Deputy Chairman of the Council of Ministers and as Minister of Defense Industries. Earlier he held senior positions in research institutes and directed the "Bolshevik" plant in the armaments sector.<sup>13</sup>

While primary duties are assigned to individual Politburo members probably on the basis of background, interests, and prestige, each member of the ruling body shares responsibilities in all areas. More intensive participation in decisions on space could be expected from those Politburo members who have primary decision-making responsibilities in related areas. Among these would be Andrey Grechko, who is the Soviet Defense Minister and has defense responsibilities in the Politburo. Petr M. Masherov, who handles science, industrial administration, and education, could also be assumed to have close ties to the space field.

It is difficult to name the Central Committee departments most closely involved with the space program, as all have not been fully identified. The departments handling science and educational institutions (headed by Sergey P. Trapeznikov) and defense industries (headed by Ivan D. Serbin) probably have a role in the oversight of the space program. The Central Committee as a body is reported to have conducted intensive reviews after Soviet space setbacks such as Salyut 1 and Salyut 2 in 1973.<sup>14</sup>

At the lower levels, the Communist Party also has the capability to perform a "watchdog" function over space affairs. Basic Party units are present at research institutions, in the Soviet Academy of Sciences and its branches, in the relevant military sections and within the industries doing space work. While the main task of these units is probably the ideological training of the workers, they would seem to have other potential control capabilities and could provide a direct channel between the Central Committee and the individual institutions.

## C. ROLE OF THE FORMAL GOVERNMENT STRUCTURE

### 1. *The Council of Ministers*

Central Committee policy guidelines on space, on the basis of established patterns, would pass directly to the Council of Ministers. Theoretically, the Council of Ministers is responsible to the Supreme Soviet, but in terms of the structure of the real decision-making process, the Supreme Soviet appears to play no role. The passing of directives from the Central Committee of the Communist Party to the Council of Ministers is simplified by the fact that the Chairman of the Council of Ministers, the ten Deputy Chairmen, and the heads of the subordinate ministries, State committees and other agencies all simultaneously hold high Party offices. Six of the 15 full members of the Politburo are also members of the Council of Ministers. For a

<sup>13</sup> Crowley, Edward L. (et al) eds. *Prominent Personalities in the USSR: A Biographical Directory*. Compiled by the Institute for the Study of the USSR, Metuchen, N.J., Scarecrow Press, 1968, p. 652.

<sup>14</sup> White, Sarah and Grigori Tokati. *Green Light for Soviet Space?* New Scientist, v. 65, February 1975: 439.

period under Joseph Stalin and later Nikita Khrushchev, the General Secretary of the Communist Party also assumed the position of Chairman of the Council of Ministers (Premier). Those duties are now separated with Soviet leader Brezhnev acting as General Secretary of the Party and Alexey Kosygin acting as Chairman of the Council of Ministers. At the same time, Kosygin is a ranking member of the Politburo, although not a member of the Party Secretariat.

The Soviet Constitution refers to the Council of Ministers as the highest executive and administrative organ of the state. It is the Government's central coordinating, planning, and controlling body, and is accountable directly to the CPSU. While the Soviet Constitution gives the Council no legislative authority, it does in fact issue orders and decisions that become law. Major Government policy decisions are made in the Presidium of the Council of Ministers on the basis of Party guidelines and directives.<sup>15</sup>

Members of the Presidium of the Council of Ministers, aside from Chairman Kosygin and First Deputy Chairman Kirill T. Mazurov, who may play a significant role in the space organization are Vladimir A. Kirillin (Chairman of the State Committee on Science and Technology), Nikolay K. Baybakov (Chairman of the State Planning Committee), Veniamin E. Dymshits (Chairman of the State Committee for Material and Technical Supply), and Leonid V. Smirnov (Chairman of the Military Industrial Commission). Non-Presidium members who head ministries and other departments subordinate to the Council of Ministers with a probable input into the space program, include Andrey A. Grechko (Defense Minister), Sergey A. Zverev (Minister of Defense Industry), and Konstantin N. Rudnev (Minister of Instrument Making, Automation Equipment and Control Systems).<sup>16</sup>

## *2. State Committee on Science and Technology*

The State Committee on Science and Technology is the highest Government coordinating body for scientific work, at least in the civilian sector. There are differences of opinion among Western analysts regarding the role the Committee plays in the space organization. It is generally thought to have a significant role. Some analysts view it as the chief coordinating body of the space program. Still others see it as an intermediary between the central space institution and the Government and Party leadership.<sup>17</sup> On the other hand, its position may be limited to that of coordinating some of the associated research and development activity contributing to the space program.

The precursor of the Committee was the State Committee for Coordination of Scientific Research established in 1961 under Nikita Khrushchev for the purpose of adapting basic research to industrial development. It was created in conjunction with the reorganization of the Soviet Academy of Sciences. Narrow engineering institutes were moved from under the jurisdiction of the Academy and placed under the corresponding industrial ministries. Henceforth, the State Committee for the Coordination of Scientific Research would replace the Academy as coordinator of Soviet science, leaving the latter as an institution of basic research.<sup>18</sup> The action by the Khrushchev leader-

<sup>15</sup> See American University, Foreign Area Studies, Area Handbook for the Soviet Union, Washington, Govt. Print. Off., 1970, pp. 390-393.

<sup>16</sup> U.S. Central Intelligence Agency, op. cit.

<sup>17</sup> Smolders, Peter L., *Soviets in Space: The Story of the Salyut and the Soviet Approach to Present and Future Space Travel*, Guildford, Lutterworth Press, 1973, p. 29.

<sup>18</sup> Juville, op. cit., p. 153-154.



ship was at least in part politically motivated. On the one hand it appealed those pure scientists in the Academy who resented the growing intrusion of engineers in the membership and the redirecting of the Academy's work toward the industrial sector. On the other hand, it reversed the trend under which the Academy accumulated increasing authority as the central scientific organization of the Soviet Union. The diffusion of its responsibilities may have been undertaken to eliminate what the Party viewed as a potential threat to its paramount position in the field of science.

The Committee was renamed in 1965, reemerging as the State Committee for Science and Technology. Under its new name, the Committee continues to be responsible for coordinating Soviet research and development (primarily in the civilian sector); establishing priorities, and introducing new technology into the industrial areas. Furthermore, the Committee oversees the numerous research institutes and laboratories now under the industrial ministries.<sup>19</sup>

One feature of the Committee, since its birth, has been the preponderance of officials from the defense industrial sector among its ranks. The first two chairmen, M. V. Krunichev and K. N. Rudnev, both had defense related backgrounds. Indications are that the Committee does not coordinate activities of the defense industries.<sup>20</sup> The only seeming explanation for the presence of the defense people in its ranks is that the defense establishment has significant influence over the civilian scientific and technological establishment.

The State Committee on Science and Technology is presently headed by Vladimir A. Kirillin, who is also a Deputy Chairman of the Council of Ministers and a member of the Communist Party Central Committee.

### *3. The State Planning Committee*

The State Planning Committee (GOSPLAN), under the direction of Nikolay K. Baybakov, is responsible for planning scientific, technological, and economic activities in the Soviet Union, as well as exercising budget control. It falls in the Ministerial and State Committee structure directly under the Council of Ministers. It has an input into most Soviet undertakings, especially those, such as the space program, in which numerous organizations and sectors of the economy are involved. Within the State Committee are a number of regional and functional departments. The Committee is also responsible for overseeing plan fulfillment. One of its most important duties is to participate in formulating the overall short and long term plans of the Soviet Union such as the Five-Year Plan.<sup>21</sup>

Very little is known of the relationship between the space organization and the State Planning Committee. It is generally assumed that the space program falls under the system of precise advance planning, prevalent throughout the Soviet Union. Integration of the space program with the other national undertakings would seem to require a considerable degree of involvement by the Committee.

<sup>19</sup> American University, op. cit., p. 354-355.

<sup>20</sup> Gallagher, op. cit., p. 68.

<sup>21</sup> American University, op. cit., p. 609-611.



## D. ROLE OF THE MILITARY ESTABLISHMENT

*1. General Role*

Since the early history of Soviet space and rocket research there has been a close tie between the scientists and the military establishment. Scientists and inventors learned very early that under the Soviet system, the best way to get generous and quick funding for a project was to impress upon the military the defense or strategic value of the undertaking. The initial research institutions dealing with rocketry such as the Leningrad Gas Dynamics Laboratory were established under the control of the armed forces. The secrecy cloaking Soviet space research can at least in part be explained by the military link. Soviet space scientists themselves are said to have a history of "secrecy consciousness." On the whole, Soviet space scientists have not been "prolific recorders of their findings."<sup>22</sup>

Western opinion varies on the military-civilian mix of the Soviet space organization today, and on the degree of separation between the military and civilian aspects of the program. The Soviets themselves claim that their entire space program is purely scientific and peaceful in purpose, which is known not to be the case.<sup>23</sup> In fact there appears to be general consensus among Western experts that the military is deeply involved in the program. Some analysts see the military establishment as controlling essentially only the military side of the space program with a large part remaining in civilian hands.<sup>24</sup> Other observers have expressed the opinion that the military shares, with the Soviet Academy of Sciences, the organizational control of the program.<sup>25</sup> Foy D. Kohler has suggested that rather than a NASA-type central agency, existing organizations, "particularly within the military establishment," are primarily responsible for directing the program.<sup>26</sup> Dr. Thomas O. Paine, the Administrator of NASA, in testimony before Congress in 1970, attributed a key role to the military in the space program. He said:

The Soviet space program is generally considered to be directed by the Soviet military, and public analyses indicate that a very considerable proportion of flights no doubt serve military purposes.<sup>27</sup>

*2. The Ministry of Defense*

The military establishment exerts general influence on policy at the ministerial level through the Defense Ministry with input from the five military branches. Perhaps more significantly the military has a direct input at the highest Party level through the membership in the Politburo of Defense Minister Andrey Grechko and the presence of numerous military officers in other high Party offices.<sup>28</sup> This factor in itself would allow the military to have an influence over the space organization at the very top. It is generally believed, however, that

<sup>22</sup> Daniloff, *op. cit.*, p. 30-32.

<sup>23</sup> U.S. Congress. House. Committee on Science and Astronautics. Review of the Soviet Space Program; with Comparative United States Data. Prepared by Charles S. Sheldon II. Washington, Govt. Print. Off., 1967, p. 81.

<sup>24</sup> See for example: U.S. Congress. Senate. Committee on Aeronautical and Space Sciences. Soviet space programs, 1962-1965, *op. cit.*, p. 147.

<sup>25</sup> See Ulsamer, Edgar. The Soviet Space Effort: Still Increasing. *Air Force Magazine*, v. 56, October 1973: 56.

<sup>26</sup> Kohler, Foy D. and Dodd L. Harvey. Administering and Managing the United States and Soviet Space Programs. *Science*, v. 169, September 11, 1970: 1050.

<sup>27</sup> U.S. Congress. House. Committee on Science and Astronautics. 1971 NASA Authorization. Vol. 1. Hearings held February 17, 19, 20, 24, 25, and 26, 1970. Washington, Govt. Print. Off., 1970. p. 13.

<sup>28</sup> American University, *op. cit.*, p. 580-581.

the military establishment exercises more direct influence over the program.

The Soviet Defense Ministry which is directly under the Council of Ministers in the Government structure is charged with directing, administering, and supporting the military branches. The Defense Minister and his two or three deputies head the organization. At the next level are the other deputy ministers, including the commanders-in-chief of the major military branches and the most important support branches. Below this level are the General Staff and the Main Political Administration. The Main Political Administration which acts as the Party's "watch-dog" in the military is simultaneously a section of the Party Central Committee adding another significant link. The next level in the military hierarchy includes the operating commands.<sup>29</sup>

A striking difference between the Soviet defense structure and, for example, its American equivalent is that the Soviet establishment consists of military men from top to bottom. Upon the death of Marshal Malinovskiy in 1967, it was at first rumored in the West that he would be replaced by Dmitriy F. Ustinov (the Politburo member responsible for space and defense industries). If selected, he would have become the first civilian in that position. Reportedly, he was the Party choice but under stiff opposition from the military, Grechko was chosen in his place.<sup>30</sup>

In terms of the Soviet space program, an important characteristic of the Defense Ministry is its relationship with the strategic industries which manufacture the hardware. While structurally these industrial sectors are under the Defense Industries and other Ministries, directly under the Council of Ministers, they are in practice controlled by the military establishment, according to some analysts.<sup>31</sup>

Below the Ministry of Defense, the five coequal branches of the military are the Army, Navy, Air Force, Air Defense Command, and the Strategic Rocket Force. The Air Force and the Strategic Rocket Force have a direct operational role in the space program.

### 3. *The Strategic Rocket Force*

The Strategic Rocket Force conducts all space rocket launches whether for military or civilian purposes. It was established in 1960 and is the elite branch of the Soviet military. The primary mission of the force is to launch strategic nuclear missiles. The size of the force has been estimated at 250,000 men. Very little is known of its organizational structure. It is commanded by General Vladimir F. Tolubko who replaced Nikolay I. Krylov upon his death in 1972. He is a member of the Central Committee of the Soviet Communist Party.<sup>32</sup>

The Strategic Rocket Force is thought to operate some tracking stations and tracking ships. It also may exercise some control over the launch facilities.

<sup>29</sup> Gallagher, Mathew P. and Karl F. Spielmann. *Soviet Decision-making for Defense: A Critique of U.S. Perspectives on the Arms Race*. New York, Praeger, 1972. p. 38-39.

<sup>30</sup> *Ibid.*, p. 41.

<sup>31</sup> U.S. Congress. Senate. Committee on Aeronautical and Space Sciences. *Soviet Space Programs, 1966-1970*. Washington, Govt. Print. Off., 1971, p. 85.

<sup>32</sup> U.S. Central Intelligence Agency. Reference Aid: Directory of USSR Ministry of Defense and Armed Forces Officials. April 1975, p. 13. (A-CR-75-14).



#### 4. *The Air Force*

The Soviet Air Force is responsible for cosmonaut training at Star Village (Zvezdnyy Gorodok) near Moscow and for the recovery of spacecraft. The chief of cosmonaut training is Lieutenant General Vladimir A. Shatalov, himself a veteran cosmonaut.<sup>33</sup>

The Soviet Air Force, or long-range Air Force as it is sometimes called, is distinct from the Air Defense Command which is responsible for the defense of the Soviet Union and other Warsaw Pact countries from foreign attack. The Air Force has been compared to the U.S. Strategic Air Command since its mission may be similarly limited. The advent of the missile age and the establishment of the Strategic Rocket Force to man the missiles has diminished the overall role of the Air Force.<sup>34</sup> The Air Force is presently commanded by Chief Marshal of Aviation Pavel S. Kutakhov, a full member of the Central Committee of the Communist Party.<sup>35</sup>

### E. ROLE OF THE SCIENTIFIC ESTABLISHMENT

#### 1. *Overview*

Soviet Party leader Brezhnev in his speech marking the 250th anniversary of the Soviet Academy of Sciences said that the country had more than a million people working in various fields of science, calling it a "great force that must be used properly."<sup>36</sup> It is not definitely known what percentage of these people work on the Soviet space program, or how precisely they are organized. The Communist Party exercises varying degrees of control over the entire scientific establishment.

The National Science Foundation sponsored a study on Soviet research and development which concluded in part:

The cardinal aspect of Soviet organization for research and development stems from the fundamental nature of the Soviet State wherein the allocation and employment of natural resources are determined and enforced by the central government. As is true for all economic, cultural, and other functions of Soviet society, the lines of control over research and development progressively converge toward the apex of State power, the Central Committee of the Communist Party and its executive branch, the USSR Council of Ministers. All basic decisions on the scale, direction, and organization of research and development are made or are subject to confirmation at that uppermost level of authority as if by the directors of a giant, nationwide, all-inclusive holding corporation.<sup>37</sup>

The dependent relationship of the scientists to the Communist Party is just as emphatically underscored by Soviet leaders. On this subject Leonid Brezhnev said:

Socialism and science are indivisible, and this is the reason for the victory of socialism. Socialism alone makes possible the utilization of the gains of science in the interest of the people and makes it possible to bring to light the creative potential and talents that abound in every people. . . .

\* \* \* I would like to pay special attention to a highly important problem—the Party spirit of our science. In whatever branch Soviet scientists work, they are always distinguished by one characteristic—a high level of Communist consciousness and Soviet patriotism.<sup>38</sup>

<sup>33</sup> Smolders, *op. cit.* p. 30.

<sup>34</sup> American University, *op. cit.*, p. 586.

<sup>35</sup> U.S. Central Intelligence Agency. Reference Aid: Directory of USSR Ministry of Defense and Armed Forces Officials, *op. cit.*, p. 9.

<sup>36</sup> Academy of Sciences' 250th birthday, *op. cit.*, p. 4.

<sup>37</sup> Korol, Alexander G. *Soviet Research and Development: Its Organization, Personnel, and Funds.* Cambridge, Mass., The M.I.T. Press, 1965, p. 3.

<sup>38</sup> Academy of Sciences' 250th birthday, *op. cit.*, p. 2.



The scientists are said not always to welcome the Party's control over their work. Some analysts view the Party-science community relationship as one of chronic tension. This may be explained partially by the fact that Soviet science has been subjected to Party control without the scientists themselves having been integrated, to any significant degree, into the Government decision-making process. On the whole, analysts believe, American scientists have more influence on policy than their Soviet counterparts through institutions such as the President's Science Advisory Committee or the Special Assistant for Science and Technology. (Ironically, such American institutions were established in response to the Soviet Sputnik challenge).<sup>39</sup>

This is not to imply, however, that individual space scientists have no input into top-level decision-making. On the contrary their influence, at times, can be significant. It was reportedly Sergey Korolev, the former Chief Designer and major figure in the Soviet space program, who convinced Khrushchev to provide major support and funding for the Soviet space program by promising that, given the proper tools, he could beat the United States in sending up a sputnik for the International Geophysical Year in 1957.<sup>40</sup> However, Soviet scientists do not appear to be involved in the decision-making on an institutional or sustained basis.

An important factor in viewing the Soviet space organization is the distinction that exists within the Soviet science establishment between what one analyst calls civilian scientists and defense scientists. There is a striking contrast between the scientific achievements to date of the defense sector on the one hand, and the civilian sector, on the other. The defense sector has had remarkable successes, while the civilian sector has had very mixed results, including stagnation in many areas, over recent years. Defense research and development receives preferential funding which in turn has the effect of providing the defense scientists with more favorable working conditions than their civilian counterparts. It has been estimated that the defense sector, in the broad sense, receives as much as 80 per cent of research and development allocations.<sup>41</sup> In this estimate, the entire space effort is included in the defense category, on the grounds that the space program has had the success, commitment of resources, and preferential treatment characteristic of that category.

Many analysts believe that funding alone does not explain the greater effectiveness of defense and space R&D. They see a more efficient organization in the strategic areas. The views of these analysts were reinforced in a 1962 speech by Premier Khrushchev. He attributed Soviet success in these areas to the "centralization and concentration of scientific and design forces in the appropriate committees" and admitted that this sort of efficiency did not yet exist in other areas.<sup>42</sup>

Despite the difference between the two scientific sectors (defense and civilian), they share many common problems. One factor that probably works against rapid progress in space research is the existing compartmentalization of scientific work. One scientist or group of

<sup>39</sup> Juviler, Peter H. and Henry W. Morton, eds. *Soviet Policy-making: Studies of Communism in Transition*. New York, Praeger, 1967, p. 58.

<sup>40</sup> Gallagher, Matthew P. and Karl F. Spielmann. *Soviet Decision-making for Defense: A Critique of U.S. Perspectives on the Arms Race*. New York, Praeger Pub., 1972, p. 72-73.

<sup>41</sup> *Ibid.*, p. 55, 66.

<sup>42</sup> *Pravda*, November 20, 1962; cited in Gallagher, *op. cit.*, p. 68.

scientists does not necessarily know what the other is doing. Scientists throughout the Soviet system are said to be plagued by an inability to gain from the free flow of ideas and information which Western scientists, for example, rely on heavily.

## 2. *The Soviet Academy of Science*

a. *General Organization.*—The Academy of Sciences is the most visible institution of the Soviet space organization. The Soviet Union presents it as the counterpart of the U.S. National Aeronautics and Space Administration (NASA) in its space role. In negotiations with NASA on space cooperation, the Soviet Union is represented by Academy officials. Some leading Western experts subscribe to this dominant position attributed to the organization by Soviet spokesmen. The Dutch expert Peter Smolders maintains that under the control of the top Party and Government organizations the actual "coordination of all space activities, manned as well as unmanned flights, is in the hands of the Soviet Academy of Sciences."<sup>43</sup>

Other observers agree that the Academy is one of the institutions heavily involved in the space organization, providing research support, consultation, and acting as spokesman for the program at home and abroad, but dispute the central role within the organization attributed to it. They do not deny that key figures in the Academy might actually be involved in the central coordination of the space effort in other capacities. For example, the former Academy President, Mstislav V. Keldysh, is recognized as a prominent space scientist. The Soviet press has associated the "successes of the U.S.S.R. in the exploration of space" with his name and has referred to him as an organizer and initiator" of the space program.<sup>44</sup> Furthermore, membership in the Academy is a form of recognition for which leading space scientists seem to be prime candidates.

The evidence generally used to support the arguments of those who doubt the central role of the Academy as an institution in the space organization is that (1) its scope of responsibility has become too limited as a result of the various reorganizations for the Academy to play the role of coordinator; and (2) the Soviet Communist Party leadership and the military establishment seem to have a historical mistrust toward the Academy (despite the esteem in which they hold it) that would make it unlikely for them to give the institution the central coordinating role.

Membership in the Soviet Academy of Sciences is one of the highest honors conferred by the Soviet State. The functions of the Academy encompass not only the natural sciences, but also the social sciences, law, and humanities. The academy is considered to be the leading center of basic and applied research in the Soviet Union. Under the Academy are fourteen Republic academies and seven branches. It serves as coordinator for the pure scientific research carried on by the academies of the Soviet Union Republics and the specialized institutes.<sup>45</sup> In all, the Academy incorporates 250 scientific institutions and employs over 160,000 people, 40,000 of whom are highly trained researchers.<sup>46</sup>

<sup>43</sup> Smolders, *op. cit.*, p. 29.

<sup>44</sup> The New York Times, May 31, 1971: 32.

<sup>45</sup> Juviler, *op. cit.*, p. 134.

<sup>46</sup> Academy of Sciences 250th Birthday, *op. cit.*, p. 4.



The highest body of the Academy in the formal structure is the General Assembly which includes all the regular and honorary members. Real control is exercised by the Presidium of the Academy. The Presidium members for the most part hold high-level Party posts. They act as the channel for Party and Government directives. Below the Presidium is the Scientific Secretary. Under him are the councils, departments, and agencies. As elsewhere in the Soviet system, the Party exercises control from the top and at every level of the Academy. Political secretaries are assigned to every institute and department. The President of the Academy is A. P. Aleksandrov.

The Academy was reorganized in 1963, when reforms mentioned by Khrushchev as early as 1956 were instituted. On the basis of the reforms the Academy remained the central coordinator of theoretical research. Many organizations, such as the Institute for Metallurgy were transferred to the industrial ministries. The Academy continued to carry on some engineering research of fundamental importance, but it no longer worked on the practical applications.<sup>47</sup> As a result of the reorganization, the Academy remains the single most important and prestigious scientific institution in the Soviet Union. However, it has lost its position in the overall administration of Soviet science and technology.

Within the structure of the Academy are to be found several commissions and sections directly involved in the space program. Other space commissions may fall under the jurisdiction of the Academy. Some of these units probably contribute significantly to the space effort while others may serve primarily as a front for the more secret space organization.

*b. Space Institutions under the Academy.*—Under the auspices of the Soviet Academy of Sciences are numerous commissions, institutes, and organizations which deal with various aspects of space research. In 1954, an organization was established under the title Interdepartmental Commission for the Coordination and Control of Scientific-Theoretical Work in the Field of Organization and Accomplishment of Interplanetary Communications. It was headed by Leonid I. Sedov and included, among others, Petr L. Kapitsa and Anatoliy A. Blagonravov. The main function of the Interdepartmental Commission was to coordinate scientific research aimed at launching a Soviet Sputnik. It was also reportedly responsible for developing experiments to be carried out in space, for publicizing Soviet space achievements, maintaining contacts with foreign space organizations, and sending scientists to represent the Soviet Union at international space conferences.<sup>48</sup> The Interdepartmental Commission was reportedly superseded by the Commission on the Exploration and Utilization of Space, headed by Blagonravov.<sup>49</sup> (Soviet sources refer to it as the Commission for the Study and Use of Outer Space).<sup>50</sup>

Another institution apparently under the auspices of the Academy of Sciences is the Commission for the Promotion of Interplanetary Flights, headed by Leonid I. Sedov (formerly with the Interdepartmental Commission and Vice President of the International Astro-

<sup>47</sup> Juviler, *op. cit.*, p. 155.

<sup>48</sup> Daniloff, *op. cit.*, p. 56, 76-77.

<sup>49</sup> Beck, *op. cit.*, p. 148.

<sup>50</sup> Lebedev, *Lev. Soviet Space Research. Space World*, v. k-11-131, November 1974: 22.



nautical Federation).<sup>51</sup> The organization is also referred to as the Commission for Space Travel.<sup>52</sup> At least one of its important duties seems to be as spokesman and representative internationally for the Soviet space program.

A major agency of the Academy of Sciences is the Council for International Cooperation in the Studies and Uses of Outer Space (Interkosmos). The Council is the coordinator for all cooperative space ventures with the countries of Eastern Europe, to which the Soviet Union attributes major political significance. Chairman of the Council is Boris N. Petrov, considered a foremost expert in cybernetics and the theory of automatic control. He is also the Director of the Department of Mechanics and Control Processes at the Academy and a professor at the Moscow Aviation Institute. Furthermore, he is another leading international spokesman for the Soviet space program.<sup>53</sup>

The Institute of Space Research, directed by R. Z. Sagdeyev is one of several advanced research centers operated by the Academy.<sup>54</sup> Some of these Institutes offer advanced university degrees.

The Soviet Academy of Sciences also operates some of the space tracking stations within the Soviet Union and ten of the tracking ships operating around the globe. Other space communications ships are operated by the Navy and the Strategic Rocket Force. The Coordination and Computing Center which analyzes communication received from space is also reportedly under Academy administration, as is Star Village (Zvezdny Gorodok), at least formally, where the cosmonauts are trained by the Air Force.<sup>55</sup>

### 3. *Input from the Universities*

Universities in the Soviet Union are thought to have less of an input into research and development than their American counterparts. The institutes of higher learning conduct much of their own research. But their work does not seem to be integrated with the research performed at the Academy and elsewhere. This departmentalization inhibits the exchange of technological information between the universities and the space organization and among the universities themselves. Furthermore, it is said to work to the detriment of the ability to improvise in the space program.<sup>56</sup> The universities may constitute a large untapped or wasted resource in the Soviet space program.

## F. THE QUESTION OF A CENTRALIZED SOVIET SPACE AGENCY

### 1. *The Evidence*

Over the years Western experts have been interested in the question of whether there exists a central coordinating agency for the Soviet space program. There is evidence and strong opinion on both sides, but no proof. Clearly, an undertaking of the scope of the space program needs high-level coordinating. While it is an accepted fact that the highest level oversight comes from the Communist Party leadership, it also stands to reason that this group does not conduct the day-to-day management of the program.

<sup>51</sup> Gwertzman, Bernard. High Space Costs Backed in Soviet. New York Times, February 28, 1971: 20.

<sup>52</sup> Smolders, op. cit., p. 29.

<sup>53</sup> Pond, Elizabeth. Soviets Plan to Land on Venus. Christian Science Monitor, June 17, 1975: 1, 9.

<sup>54</sup> The Soyuz-13 flight. New York Times, no. 52, December 1973: 12-13.

<sup>55</sup> Smolders, op. cit., p. 30.

<sup>56</sup> Coexistence in Space? Swiss Review of World Affairs, v. 25, August 1975: 3.

The specific questions involved in the space agency speculation are, (1) whether a central agency, distinct from the institutions already discussed, exists at all; (2) if a separate coordinating mechanism exists, whether it is a formal agency rather than an informal grouping along "Manhattan Project" lines; and (3) the structure and membership of such an organization.

In 1963, the Aerospace and Technology Division of the Library of Congress released a study on the management of the Soviet space program, together with organizational charts, according to which the Soviet space program was headed by the State Commission for Space Exploration, directly under the Council of Ministers.<sup>57</sup> The Soviet press on very rare occasions has referred to a "State Commission." In general, however, the Soviet media speak obliquely about the "collectives" of scientists and other talent. In 1972, an American reporter visiting "Star Village" near Moscow spoke of the "State Commission" clearing the spacecraft for launch, and said that while the identity and scope of the organization is not known, it is presumed to incorporate many of the functions of NASA.<sup>58</sup>

Another observer, Nicholas Daniloff, quotes one source as having identified the Soviet space agency as the "State Commission for the Organization and Execution of Space Flight."<sup>59</sup> He also attributes responsibility for all launches to the Commission.

Other analysts believe that the Soviet Union has no space agency which approximates America's NASA.<sup>60</sup> In place of such an organization, they perceive an elaborate system of coordination among participating institutions on an informal basis. One observer sees a "tendency to resort to ad hoc arrangements to override whatever barriers exist" in high priority fields of Soviet research and development. This he believes functions only because of the intimate participation by the Soviet leadership. Top officials can intercede quickly when stumbling blocks and jurisdictional bottlenecks, such as plague much of the civilian sector, develop.<sup>61</sup>

## 2. *The Structure*

The central coordinating mechanism of the Soviet space program probably includes representatives from the upper echelons of the Communist Party, the military establishment, the scientific establishment, and the industrial ministries and state committees that have an input into the space program. The top positions in the organization have been identified as including a Chairman, one or more Deputy Chairmen, a Launch Director, the Chief Designer, and the Chief Theoretician of Cosmonautics.<sup>62</sup> Other probable high-level members come from the military, including Air Force and Strategic Rocket Force representatives, and from the scientific and industrial sectors.<sup>63</sup>

## 3. *Speculation on Individual Identities*

The chief officials and scientists of the Soviet space program must bear the burden of working in complete anonymity. Nikita Khrushchev

<sup>57</sup> U.S. Library of Congress. Aerospace Technology Division. Management of the Soviet Space Program. Washington, October 1963. (ITS: AID Report P-63-117).

<sup>58</sup> Wilford. John Noble, Soviet Space Center: Hope Amid Expansion. New York Times, March 22, 1972: 1, 20.

<sup>59</sup> Daniloff, op. cit., p. 76-77.

<sup>60</sup> See for example: Ulsamer, op. cit., p. 56.

<sup>61</sup> Gallagher, op. cit., p. 70.

<sup>62</sup> All mention of the Chief Theoretician has been dropped and the position probably no longer exists.

<sup>63</sup> U.S. Library of Congress, op. cit., figure 3, and Daniloff, op. cit., p. 75.



frequently explained that the secrecy surrounding their identities was necessary to protect them from the threat of assassination. As a result, guessing the identities of space officials has become a lively game in the West. The Russians only disclose the identities upon the deaths of space leaders. However, occasional clues do appear in the Soviet media inadvertently.

There were reportedly occasions in the past when impostors were actually paraded to conceal the real identities of space figures. According to one account, Sergey P. Korolev, who was the Chief Designer and leading scientist in the Soviet space program, became infuriated because L. I. Sedov was being presented at international congresses as the leading Soviet space scientist. When the Western press began to refer to Sedov as the father of the Sputnik, Korolev allegedly demanded of Khrushchev that the true identities of all the people involved in the launching of the first Sputnik be published. While Khrushchev did not comply with this demand, all further reference to Sedov as the man behind Sputnik were reportedly stopped.<sup>64</sup>

The position of chairman in any national coordinating commission on space would, at least formally, be the most important. Dmitriy F. Ustinov, previously referred to as the top Soviet official on space in his Politburo capacity, has been suggested as a possible chairman of a "State Commission." Whether Ustinov, as a Politburo member, would become involved in the day-to-day administration of the space program is open to question. Some of the speculation on the position is based on the perceived identity of the earlier chairman who was thought by many to be Konstantin N. Rudnev, now the head of the Ministry of Instrument Making, Automation Equipment and Control Systems (and probably still influential in the space program). He had been in charge of defense industries from 1958-1961 prior to becoming chairman of the precursor to the State Committee on Science and Technology while allegedly heading the "State Commission." He was also a Deputy Chairman of the Council of Ministers. A man who possesses a very similar background, and is, therefore, a logical subject of speculation regarding the chairmanship, is Vladimir A. Kirillin.<sup>65</sup> He is currently Chairman of the State Committee on Science and Technology and a Deputy Chairman of the Council of Ministers, as well as a member of the Party Central Committee.

Leonid V. Smirnov and Sergey A. Zverev are two other people who, on the basis of their present positions and backgrounds, in areas associated with the space and defense fields, could be considered possible candidates for the position of chief space coordinator. Smirnov is Chairman of the Military-Industrial Commission and a Deputy Chairman of the Council of Ministers. Zverev holds the important post of Minister of Defense Industries.

Korolev held the position of Chief Designer of the Soviet space program until his death in 1966. In this capacity he presumably worked under the direction of the Chairman. However, on frequent occasions he is said to have reported directly to Premier Khrushchev. He was responsible for the scientific and technological aspects of the Soviet space program. According to some sources, Korolev also held the posi-

<sup>64</sup> Vladimirov, Leonid. *The Russian Space Bluff*. London, Tom Stacey Ltd., 1971, p. 19.

<sup>65</sup> Daniloff, op. cit., p. 81.



tions of Launch Director and Deputy Chairman of the "State Commission".<sup>66</sup> It is unlikely that one man replaced him in all three positions.

Mikhail K. Yangel is believed by some observers to have replaced Korolev in the position of Chief Designer. When Yangel died in 1971, a TASS Soviet news agency obituary called him the "outstanding scientist and designer in space technology" and the "man who raised a galaxy of outstanding designers and scientists". It said that he had made a unique contribution to the unmanned lunar program and the Venus and Mars programs. He was also said to have had a major role in the area of manned space flights. Yangel was a full member of the Soviet Academy of Sciences and of the Supreme Soviet. He had received the highest Soviet honors during his life. After World War II he is known to have worked on Soviet aviation and rocketry and is said to have directed a top national rocket design bureau.<sup>67</sup>

Since Yangel's death, speculation on the identity of the Chief Designer has involved Vladimir N. Chelomei. He is known to be a prominent figure in the Soviet space program. He is thought by some observers to have had a position rivaling that of Korolev under Khrushchev. Chelomei graduated from the Kiev Aviation Institute and designed jet aircraft engines during World War II. After the war he began to work in the rocket field. He became a Bauman Engineering School professor in 1952. He, too, is a Supreme Soviet Deputy.<sup>68</sup>

Other names have been mentioned from time to time as possible members of the "State Commission". Valentin P. Glushko is known to have been a designer of rocket engines. In early Soviet space literature his name was linked with that of Korolev and Tikhonravov. He has been suggested as the possible Chief Designer of Rocket Engines.<sup>69</sup>

In his obituary, Aleksey Isayev was identified by TASS as the chief designer of the rocket engines for the Vostok, Voskhod, Soyuz and Mars spacecraft. Very little was revealed about his background other than that he was a university graduate who worked in the field of aviation and rocket engine development. He was called one of the main creators of the first Soviet jet in 1942. In his lifetime he had received the highest Government honors and awards.<sup>70</sup>

Leonid I. Sedov, as a specialist in mechanics and aerodynamics, is also thought to have an important role in the program, even though he may not be "the father of Sputnik" as the Western press at one time suggested.

A final point which has interested Western observers concerns the true identities of leading space scientists who write articles in the Soviet Union under pseudonyms. Key figures in the space program are known to have used this approach to maintain their anonymity in the past. Korolev allegedly used more than one pseudonym in his life time. A former Soviet journalist who at one time wrote about the space program said that Korolev regularly wrote articles for *Pravda* under the pseudonym "Konstantinov".<sup>71</sup> He is also thought to have been the author of articles under the name Professor K. Sergeev. These articles were generally New Year's reports on the Soviet space

<sup>66</sup> Daniloff, op. cit., p. 78.

<sup>67</sup> Mikhail Yangel Dies; Soviet Space Scientist. Washington Star, October 27, 1971: B5.

<sup>68</sup> Shabad, Theodore. Russians indicate rocket specialist heads space program. New York Times, July 14, 1974.

<sup>69</sup> Daniloff, op. cit., p. 84-85.

<sup>70</sup> Soviet Rocket Designer Identified. Washington Star, June 27, 1971: A11.

<sup>71</sup> Ibid.

program. If he indeed wrote the articles, he merely reversed his names. This has led to speculation that the articles which started to appear in the late 1950s by Professor G. V. Petrovich may have been written by Valentin P. Glushko, the rocket engine designer.<sup>72</sup> Without speculating on pseudonyms used by other leading space scientists, it can be guessed that some of the signatures appearing on articles today may be pseudonyms for key space figures.

#### *4. Some Concluding Generalizations*

Few conclusions can be drawn on the organization of the Soviet space program with any degree of certainty. It is known that the Communist Party exercises overall control from the top through its Central Committee and ruling Politburo and at every level through an elaborate network of "political secretariats". The top decisionmaker on space is the General Secretary of the Party whose degree of personal involvement depends on his own discretion. (There are indications that Nikita Khrushchev, as a space enthusiast, involved himself intimately. It is possible that Leonid Brezhnev participates less directly.) The Politburo member charged with directing the space program is thought to be Dmitriy F. Ustinov. This position would appear to make him the top space official.

At the Government level, the directives of the Communist Party leadership are received by the Council of Ministers. The coordination is simple because the Council includes several of the Party leaders. The Council of Ministers has under it the ministries and state committees which oversee many of the elements going into the space program. The most important are the Ministry of Defense, the Ministry of Defense Industries, the State Committee on Science and Technology, the State Committee on Planning, the Military-Industrial Commission, and the Ministry of Instrument Making, Automation Equipment, and Control Systems. Among them, they control the industries and the research and development involved in the space program.

The military establishment plays a large, possibly dominant, role in the space program. Military influence may be exercised directly or through outside organizations on which it is heavily represented. In this context, it seems revealing that most of the individuals who are mentioned as probable high functionaries in the space organization have strong military or defense industry backgrounds. The military participates directly in the space program at another level. The Air Force is responsible for cosmonaut training and vehicle recovery. The Strategic Rocket Force conducts all space launches. The three major launch sites are administered by the military.

The Soviet Academy of Sciences and its subsidiary organizations are extensively involved in the space program, but possibly not in the central role sometimes attributed to them. The Academy and its members are held in the highest esteem in the Soviet Union, but there appears simultaneously to be an element of mistrust toward the scientific establishment and its chief organ among the Party and State hierarchy. Furthermore, since its reorganizations, the Academy does not seem to be set up in a manner that would allow the most effective coordination of the space effort.

<sup>72</sup> Daniloff, *op. cit.*, p. 84.

Therefore, it would appear that there is a central coordinating mechanism which lies outside the Science Academy structure and which includes high-level representatives from the major participating groups; namely, the Communist Party, the military, the scientists, and the sectors of the Soviet economy involved in the space program. Whether this mechanism is a formal agency such as the much discussed "State Commission" or just an informal grouping of key individuals remains an open question. There is strong opinion, but there seems to be no conclusive evidence on either side. Regarding the membership of this coordinating mechanism, speculation by various Western observers has been included as a point of interest. However, due to the tight veil of secrecy that surrounds key Soviet space figures, their identification remains a highly conjectural exercise.





## CHAPTER THREE

### RESOURCE BURDEN OF THE SOVIET SPACE PROGRAM

By John P. Hardt\* and George D. Holliday\*

#### I. INTRODUCTION

##### A. POST-STALIN SPACE DRIVE AN IMPERATIVE

Since its emergence to prominence in the 1950's, the Soviet space program has reflected national economic, political, and military goals to a larger extent than the U.S. program. The correlation of Soviet national objectives in military and civilian space has been facilitated by the apparent centralization of decision-making in the Politburo of the Communist Party.<sup>1</sup> Moreover, the administration of Soviet military and civilian space has been less distinctly separated than in the United States. Consequently, reliance on favored research and development institutions and the more sophisticated military-industrial support industries have placed Soviet space in the favored position with military claimants on resources. In a sense, the old resource allocation choice between "guns and butter" placed space in the preferred position of the former. Under Stalin's rule, it was clear that this broad question of resource allocation choice was not an operative policy issue. Only in the Brezhnev period, especially since 1967, does such a choice appear to have been an active consideration for Party economic decision-makers. In the modern Soviet context, for example, we may say that the decision to build new chemical fertilizer plants or new military or space facilities might result from these broad "guns or butter"-type considerations by the top leadership.<sup>2</sup>

For most of the Stalinist period and the transitional rule of Nikita Khrushchev, resource allocations to the military and space programs were largely given or stipulated for Soviet economic planners. The special personal relationship of Academician Sergey Korolev and Party leader Khrushchev doubtless contributed to the special space priority in the post-Sputnik period. With the passing of the two from the scene politically and physically, the space priority has probably been more institutionalized, and less personalized.

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<sup>1</sup> Cf. Francis T. Miko, Organization and Administration of the Soviet Space Program, in this volume.

<sup>2</sup> Central Intelligence Agency, Soviet Economy: 1974 Results and Prospects for 1975, March 1975, p. 21.

## B. EMERGENCE OF SPACE BURDEN IN POST-KHRUSHCHEV PERIOD

As the military claims on investment funds began to be assessed more critically in the late 1960's, the space claims may have come under increasing scrutiny. There appears to be an increasing awareness of the alternative uses of scarce resources in the space program. The sophisticated demands of civilian investment programs for projects such as petrochemical plants appear to have been given increasing attention. In considering these competing demands for resources, the part of the space budget that did not contribute directly to military strategic systems was probably under the most severe pressure.

In assessing the resource burden, we have in mind two rather different kinds of questions:

1. Objectively, what were the quantity and quality of resources made available to the space programs?

2. Subjectively, how did the leadership appear to view the burden of space programs in terms of the options foregone in other allocations—the opportunity costs?

From the former measurement of resources devoted to space, we might also be able to throw some light on the question of the selective efficiency of the programs. Equivalent allocations to space programs in countries such as the Soviet Union and the United States probably resulted in different outcomes.

The more subjective question of opportunity costs—although more difficult to assess—might provide insights on future program developments, help to explain past space program choices, or indicate a basis for the cooperative program in space. The alternative costs or perception of needs may have influenced Soviet decisions on competing with the United States in the “race to the Moon,” choosing between manned and unmanned flights, and assigning priority to development of a space shuttle. Moreover, if the economic gains were deemed sufficient, the political costs of U.S.-Soviet space cooperation may have appeared more tolerable. To be sure, many of these choices were technologically constrained. However, the margin between economic and technological feasibility is difficult to establish with any precision. More funds for research and development might overcome technological constraints.

The objective question is primarily a measurement problem. Attempts to measure, in turn, are limited by the accuracy of Soviet data or the willingness to disclose the data and by problems of translating Soviet measurements—either in physical or monetary terms—into measurements susceptible to international comparisons. If Soviet leaders have been increasingly interested in choice among space and other programs, the accuracy of measurements may be presumed to have improved. However, the limitation on disclosure of information in the Soviet system makes such a judgment difficult to document. The secrecy system has been and continues to be, so pervasive and restrictive that direct access to the kind of information normally available in the West is severely limited. Moreover, the access of many Soviet officials and professional analysts to Soviet data is also sharply restricted. This important information precondition is so crucial in influencing what an outsider may deduce or what most insiders may know, that a detailed discussion of the Soviet State secrecy laws, their current applications, and impact is the first step in our analysis.



## II. SOVIET SECRECY

### A. ESTABLISHMENT OF THE STALINIST SYSTEM

For students of the Soviet economy, the barriers posed by official secrecy are formidable. Even in areas that have only marginal national security implications, such as crop forecasts, statistics on grain reserves, production of certain valuable minerals, and balance of payments accounts, economic data are closely guarded, and access is apparently limited to a very small number of officials and specialists. The Western observer who wishes to learn about such matters from Soviet publications is required to piece together various bits of related data, make some assumptions about how the Soviet economic system functions, and derive estimates that are often very crude. In military-related activities, such as space spending, this task is even more complicated as the absence of published data is virtually absolute. For example, despite evidence of the existence of a large Soviet space program, no space expenditures are listed in the officially published Soviet budget. Soviet space officials add little to our knowledge of this subject, generally limiting themselves to generalizations about large or increasing space expenditures.

This extreme secrecy is in accordance with the policy followed by Soviet leaders since the late 1920s. The first signs of this policy came when the Soviet Government discontinued the previously rather liberal publication of various statistics related to the economic well-being of Soviet citizens.<sup>3</sup> The concept of "state secret" developed and was codified into law with the apparent goal of not only safeguarding national security but also protecting the regime from disclosure of politically embarrassing information that would reveal its priority system in resource allocations. The scope of information declared to be state secrets grew rapidly in conjunction with the leadership's attempts to develop Soviet military power and to impose economic austerity on the population while pursuing a policy of rapid industrialization.

On April 27, 1926, the Council of People's Commissars of the U.S.S.R. issued for the first time a "List of Information Constituting State Secrets." The list outlined three categories of state secrets: military, economic, and "other" (primarily matters relating to foreign policy).<sup>4</sup> In practice it provided the legal basis for Party and Government officials to withhold from public disclosure whatever they deemed necessary. It was eventually superseded by revised lists promulgated on June 8, 1947 and April 28, 1956. The 1947 list was much more detailed and exhaustive than its predecessor. Not only were the types of secret military information more carefully detailed, but several kinds of non-military information were added. Particularly noteworthy was the addition of a new category of classified information: "discoveries, inventions and technical improvements, and research and experimental work in all fields of science, technology and national economy, until they are finally completed and authorized to be published."<sup>5</sup> The new provision reflected a greater awareness by the

<sup>3</sup> Leon Herman, *Varieties of Economic Secrecy in the Soviet Union*, Santa Monica, Calif., The Rand Corporation, December 1963, P-2849, p. 5.

<sup>4</sup> *Sotsialisticheskaia zakonnost'* (Socialist Law), 1926, No. 32, Item 213, cited in George Ginsburgs and Armin Ruscis, *Soviet Criminal Law and the Protection of State Secrets*, in Z. Szirmai, ed., *Law in Eastern Europe*, Leyden, A. W. Sythoff, 1963, p. 11.

<sup>5</sup> Ginsburgs and Ruscis, op. cit., p. 28.

leadership of the importance of scientific and technical progress to Soviet economic growth and military power.

#### B. POST-STALIN RETENTION OF SECRECY

The 1956 list provides the present legal basis for administering Soviet secrecy laws. Two recent Soviet textbooks, published in 1970 and 1971, cited the list as being the law in force at that time.<sup>5a</sup> While it is somewhat more moderate than the 1947 list, it still includes an imposing array of military and non-military information as state secrets. Virtually any information related to military tactics and strategy, location and number of troops and bases, amounts of armaments and military equipment, and various other military matters are listed. Naturally, since Soviet space activities are carried out in facilities that have military as well as civilian applications, information about them is generally guarded as state secrets.

In addition, a wide range of information of an economic nature is included on the secrecy list. Examples of economic items on the list are indicative of the difficulties in analyzing sensitive economic activities such as space spending:<sup>6</sup>

- general information on the location of military-industrial enterprises, production capacities, plans for production of armaments, military equipment and ammunition and data on the fulfillment of the plans in concrete terms as a whole for the U.S.S.R. all-union and union-republic ministries, chief administrations, and enterprises of all-union significance;

- discoveries and inventions of major military significance;

- discoveries and inventions of major scientific and national economic significance before the heads of ministries and departments have granted permission for their publication;

- such other information as may be added by the Council of Ministers of the U.S.S.R. to the list of matters subject to state secrecy.

An important feature of this list is its open-ended nature. In practice, the last item in the list has been used as the basis for keeping secret whatever the leadership believes necessary. The application of this provision may also be retroactive. All of which enforces an environment of secrecy.

The penalties for disclosure of state secrets are specified in laws enacted in 1958 as part of a general legal reform in the early post-Stalin period. Four articles in the Statute on State Crimes, Articles 1, 2, 12 and 13 and one article in the Law on Military Crimes, Article 23, provide for a variety of penalties depending on the severity of the crime. Penalties range from death for treason and espionage to confinement for two to five years for smaller offenses, such as, "disclosure of state secrets."<sup>7</sup>

The effect of such penalties is to inhibit any Soviet official from speaking or writing of matters that are routinely publicized in the West, unless prior approval has been obtained from top Party leaders.

<sup>5a</sup> Kurs sovetskogo ugovornogo prava v shesti tomakh. Chast' osobennaia. Tom IV. Gosudarstvennye prestupleniia i prestupleniia protiv sotsialisticheskoi sobstvennosti (Treatis of Soviet Criminal Law. Special Part, Vol. IV. State Crimes and Crimes Against Socialist Property. Moscow, 1970:213; Sovetskoe Ugoynoe Pravo. Osobennaia Chast' (Soviet Criminal Law. Special Part.), Moscow, 1971: 32-33.

<sup>6</sup> A. Valerian and Semen S. Studenkin, Sovetskoe Administrativnoe Pravo (Soviet Administrative Law), Moscow, Gosizdat, 1959, cited in Zigurd L. Zile, Robert Sharlet and Jean C. Love, The Soviet Legal System and Arms Inspection, New York, Praeger, 1972, p. 223-224. The 1956 list of state secrets was renewed by decree of Sept. 15, 1966, F. J. M. Feldbrugge (editor) Encyclopedia of Soviet Law, Leiden: Oceana Publishers, 1973, p. 600.

<sup>7</sup> Osnovy ugovornogo zakonodatel'stva Soiuza SSR i Soiuznykh Respublik, Zakon ob ugovornoi otvetstvennosti za gosudarstvennye prestupleniia (Basic Criminal Law of the Union of Soviet Socialist Republics), Articles 1, 2, 12 and 13 and Zakon ob ugovornoi otvetstvennosti za voinskie prestupleniia, Article 23, of December 25, 1958, also cited in Ginsburgs and Rusis, op. cit., pp. 32-35.



One of the valuable aspects of U.S.-Soviet space cooperation has been the leadership's approval of release of certain kinds of information related to the Soviet space program. Such information, however, has not included data on Soviet space spending.

Soviet space allocations and space activities fit largely under the coverage of the pervasive secrecy system. As a result, direct information on either space budgets or activities are difficult to obtain directly from Soviet sources. To be sure, an annual state budget is published with single line items for military and science. Space activities are included in those categories. But there is no reason for confidence in any consistent interpretation on the comprehension, reliability, or comparative meaning of these figures. Likewise, the Soviet published information on space activities from which allocations might be derived are sketchy at best. Indeed, it seems fair to state that the spirit of the Soviet State secrecy laws is an accurate gauge of intent, i.e. allocations to space and accomplishments in space are by and large to be kept strictly secret. For Soviet officials who might wish to obtain access to such information and release it in their published works the criminal penalties of the legal system would seem to be an effective deterrent. Information on space therefore comes largely from four sources:

(1) Activities monitored in the West, especially by the United States.

(2) American intelligence estimates built largely on a complex aggregation of relevant data.

(3) Selective data released by the Soviet authorities largely for prestige purposes.

(4) Information obtained from scientific exchanges such as the Apollo-Soyuz Test Project.

The last two sources are very selective and incomplete measures of the Soviet space program as a whole, especially over time. As a result, we must rely heavily on the estimates of Soviet space spending of the intelligence agencies in the United States, especially the Central Intelligence Agency and the Department of Defense. Even though published information by Soviet authorities is limited, the accuracy of Western estimates may be improving due to the effective use of technical means such as satellite surveillance.<sup>8</sup> Supplemented by comprehensive economic data, the process of setting parameters and estimating the scope and structure of Soviet space programs may be reasonably reliable.

### III. SOVIET SPACE SPENDING

#### A. PRIORITY OF SPACE ALLOCATIONS

According to CIA Director William Colby, defense and space spending have been growing at a rate of about 3 percent per annum in the period 1960-1973. As the overall Gross National Product (GNP) grew more rapidly, the share of GNP represented by defense and space fell from 10 percent to between 7 and 8 percent during that time period.<sup>9</sup>

<sup>8</sup> Testimony of William Colby, Director of Central Intelligence Agency, in U.S. Congress. Joint Economic Committee. Subcommittee on Priorities and Economy in Government. Allocation of Resources in the Soviet Union and China—1975. Hearings, 94th Congress, 1st session, June 18 and July 21, 1975, p. 23. (Hereafter, Allocation, 1975.)

<sup>9</sup> Testimony of William Colby. U.S. Congress. Joint Economic Committee. Subcommittee on Priorities and Economy in Government. Allocation of Resources in the Soviet Union and China. Hearings, 93d Congress, 2nd session, April 12, 1974, pp. 27-28. (Hereafter, Allocation, 1974.)



CIA analysts view the Soviet space program as dominated by military objectives and unified in administration. They find that space expenditures rose from about 2 percent of total military expenditures in 1960 to over 11 percent in 1972, with military space accounting for most of the increase. Based on these estimates (7–8 percent of GNP to defense and over 11 percent of defense in space expenditures), we may assume the CIA estimate of space to be just under 1 percent of GNP.<sup>10</sup>

The CIA estimates of Soviet defense and space spending were contested by intelligence analysts in the Defense Department.<sup>11</sup> They recently cited new evidence that these activities are more likely to account for 10–20 percent of Soviet GNP.<sup>12</sup> These revisions appear to have been accepted by the CIA. One might have asked, in reference to the earlier estimates, how the Soviet Union did so much in defense and space with the estimated expenditures. Or how they were able to outspend the United States in most categories of defense and space with a comparable share of a GNP half the size of ours. An answer may be found in the method of costing Soviet programs and converting them to dollar values, allowance for variations in ruble-dollar conversions resulting from Soviet preferential pricing policy for defense and space, and possible understatement of full costs for defense-space programs might raise the defense share to 10–20 percent of their GNP. If one accepts this higher estimate, the share devoted to the space program could be between 1 and 2 percent of current Soviet GNP.

The official Soviet budget adds little to our knowledge of Soviet space and military expenditures. Soviet budget categories are probably incomplete, undoubtedly reflect preferential pricing for the space and military sectors, and, in any case, do not provide sufficient detail to separate space spending from other outlays. However, the general trend in the “science” and “defense” categories of the budget—which probably include most Soviet space expenditures—support the notion of a steadily growing space program. From 1955, two years before the first Soviet satellite, to 1965, the Soviet science budget grew more than five-fold (from 808 million rubles to 4.3 billion rubles).<sup>13</sup> It has continued to increase, though at a less spectacular rate, since 1965. (See Table 3–1.) Since 1971, the science and education budgets have been combined. Consequently no separate totals are available.) The officially announced defense budget increased steadily in the 1960’s and leveled off in the 1970’s.

<sup>10</sup> *Ibid.*, p. 28.

<sup>11</sup> Testimony of Lt. Gen. Daniel O. Graham, Director, Defense Intelligence Agency, in *Allocation*, 1975, pp. 93–94.

<sup>12</sup> *Ibid.*, pp. 163–164.

<sup>13</sup> SSSR. Ministerstvo Finansov. Gosudarstvennyy bludzhety SSSR i bludzhety soluznykh respublik; statisticheskii sbornik. (*State Budget of the USSR and Budgets of the Union Republics, Statistical Digest*) Moscow, 1966, p. 21.

TABLE 3-1.—U.S.S.R. STATE BUDGET BY ITEM OF EXPENDITURE, 1965-74  
[Billion rubles in current prices]

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
<b>I. For the national economy</b>										
Total	101.621	105.577	115.242	128.558	138.531	154.600	164.15	173.20	183.98	198.5
Industry and construction	44.915	45.175	52.761	58.727	62.384	74.554	80.4	84.9	91.3	NA
Agriculture and procurements	(29.990)	(21.056)	(23.530)	(24.150)	(24.681)	(30.532)	NA	NA	NA	NA
Trade	6.772	6.304	6.961	9.271	10.853	12.375	NA	NA	NA	NA
Transport	2.272	2.842	4.921	6.094	6.430	6.258	NA	NA	NA	NA
Communications	2.585	2.356	2.349	2.377	2.563	2.841	NA	NA	NA	NA
Housing and municipal economy	.244	.257	.269	.277	.325	.264	NA	NA	NA	NA
Unidentified residual (computed)	4.226	4.526	5.046	5.247	5.885	6.458	NA	NA	NA	NA
	(7.826)	(7.834)	(9.685)	(11.311)	(11.647)	(15.826)	NA	NA	NA	NA
<b>II. For social-cultural measures</b>	38.165	40.761	43.481	48.310	51.860	55.941	59.437	63.485	67.343	71.22
Education	(13.245)	(14.120)	(15.043)	(16.326)	(17.425)	(18.226)	(25.295)	(27.949)	(29.808)	1 (31.2)
Science	(4.263)	(4.612)	(3.050)	(5.322)	(3.884)	(6.543)				
Health	(6.623)	(7.047)	(7.384)	(8.072)	(8.492)	(9.208)	(9.623)	(10.030)	(10.495)	1 (10.7)
Physical culture	.045	.053	.067	.066	.060	.077	(13.624)	(14.448)	(15.109)	
Social security	(9.050)	(9.745)	(10.372)	(11.256)	(12.017)	(12.738)	7.774	8.302	9.123	28.43
Social insurance	4.037	4.328	4.717	5.457	6.286	7.335	.431	.420	.408	
Assistance to mothers	.462	.456	.449	.448	.438	.435	1.650	2.336	2.400	
Social security fund for collective farmers	.437	.400	.400	1.145	1.259	1.380				
<b>III. For defense</b>	(12.780)	(13.403)	(14.500)	(16.700)	(17.702)	(17.854)	(17.9)	(17.9)	(17.9)	1 (17.65)
IV. For administration	1.280	1.412	1.512	1.616	1.716	1.661	1.8	1.8	1.9	11.86
V. Unidentified residual (computed)	(4.481)	(4.826)	(2.988)	(3.205)	(4.869)	(4.590)	(4.663)	(5.115)	(5.787)	NA

1 Plan figure.

Source: Allocation, 1975, p. 80.

Note: Items in parentheses are believed to contain some defense or defense-related expenditures.

## B. UNIFICATION OF MILITARY AND CIVILIAN SPACE

According to John Paisley of CIA's Office of Strategic Research, it is very difficult to separate Soviet military from civilian space expenditures. Still, he claimed, there is reason to believe that the military part dominates the Soviet program:

We doubt that they have a program that splits the military and civilian. Most of the activities that we know appear to be carried out at military facilities . . .

We think the most dynamic aspect of their space program is the military at the present time.<sup>14</sup>

In response to Senator William Proxmire, in hearings before the Joint Economic Committee, Mr. Colby further explained the military domination of the Soviet space program on grounds of efficiency as well as priority:

Mr. Colby. Now, you know, they have had a terrible time in their civilian space program, and they have had some very bad, bad experiences I mean, a whole string of them have not worked. They lost the astronauts and they put things on various planets that have not worked, and all the rest of it. And we think, as a conclusion, that they put their primary effort in the military arena, although their civilian space programs are given high public visibility.

Chairman Proxmire. In other words, they are including all of their effort in here, and the 2 to 11 percent increase, you think is very largely a military increase.

Mr. Colby. Yes, but a lot of it was construction of facilities that have dual purposes, and it is difficult to separate launch pads and things like that into military and civilian facilities.<sup>15</sup>

Dr. Malcolm R. Currie, Director of Defense Research and Engineering of the Department of Defense, provided additional views on March 11, 1975.

In recent years, the Soviet Union has maintained an aggressive space program with its major emphasis on support of military operations. While definitive numerical comparisons of their expenditures with our own are difficult to make, we believe that the resources which the Soviets have put into their military space programs over the past three years are much greater than our own commitments.<sup>16</sup>

The figures presented for the smaller U.S. military space program are summarized in Table 3-2.

TABLE 3-2.—U.S. CIVIL AND MILITARY SPACE EFFORTS<sup>1</sup>

[In billions of dollars]

Year	Civil <sup>2</sup>	Military	Total
1965.....	5.4	1.6	7.0
1966.....	5.3	1.7	7.0
1967.....	5.0	1.7	6.7
1968.....	4.7	1.9	6.6
1969.....	4.0	2.0	6.0
1970.....	3.6	1.7	5.3
1971.....	3.2	1.5	4.7
1972.....	3.2	1.4	4.6
1973.....	3.2	1.6	4.8
1974.....	2.8	1.7	4.5
1975.....	3.1	2.0	5.1
1976.....	3.4	2.2	5.6

<sup>1</sup> New obligational authority per fiscal year.

<sup>2</sup> Includes NASA's space effort and space activities of other U.S. Government agencies—ERDA, Commerce, Interior, Agriculture, and NSF.

Source: NASA fiscal year 1976 hearings, p. 476.

<sup>14</sup> Allocation, 1974, pp. 39, 28.

<sup>15</sup> *Ibid.*, p. 28.

<sup>16</sup> U.S. Congress. Senate. Committee on Aeronautical and Space Sciences. Authorization for Fiscal Year 1976 and the Transition Period. Hearings, 94th Congress, 1st session. Feb.-Mar. 1975, Part I, p. 475. (Hereafter, NASA FY 76 Hearings.)



No comparable breakdown of Soviet space expenditures is available. The estimate of 1-2 percent of Soviet GNP, if correct, implies a space budget of \$7-14 billion in 1974. That estimate suggests a level of expenditures that is considerably larger than the present U.S. program and probably approximates (in real terms) the U.S. space effort at its peak in the 1960's. Furthermore, judging by the ratio of military to civilian launchings, the Soviet Union devotes a much larger proportion of its space budget to military applications than the United States.

#### C. THREAT OF AMERICAN INFERIORITY

The implications of the higher Soviet commitments and different space objectives are found by Dr. Currie to be a threat of American military inferiority within a decade.

I believe that the Soviet effort right down the line in space has as its primary objective a superior military directed capability. Space is becoming a very pervasive part, as I mentioned, of our national security, and of our military capabilities, and is transitioning right now from providing support strictly in a strategic sense to support also in a tactical sense. I would look forward a decade from now to the time when man in orbit will be able to enhance considerably our military capability and when satellite survivability must be given prime consideration in our programs.

Certainly the demonstrations last year [deleted] show also that they are really proceeding down an independent path of research and development. They are no longer merely reacting to our demonstrations.<sup>17</sup>

Moreover, the programs in which the U.S. still retains leadership, such as the space shuttle with its rendezvous and docking capability, will become increasingly more vulnerable to Soviet military space capability in the Defense Department view. As the Soyuz-Apollo linkup may improve the Soviet capability to make our satellites more vulnerable, Dr. Currie implies the exchange program may further contribute to our vulnerability.<sup>18</sup> However, he does not argue that large military satellites would be less vulnerable than the space shuttle. The argument for the space shuttle is economy without a necessary increase in vulnerability.

### IV. BURDEN AND OPPORTUNITY COSTS OF THE SOVIET SPACE PROGRAM

#### A. DEFINITION OF BURDEN AND OPPORTUNITY COSTS

Perhaps the truest measure of the economic burden of Soviet space spending is a determination of the Soviet perception of opportunity costs. In other words, how much do Soviet decision-makers value accomplishments in space compared to alternative economic goals that must be foregone? In order to maintain a large space program scarce resources—materials, machinery, scientists and technicians—must be diverted from other sectors of the economy. How important are those other sectors and how are resource allocation decisions made? Andrew Marshall, Director of Net Assessment in the Defense Department, has noted this problem in assessing the burden of Soviet defense spending.

What is critical is a better understanding of how that opportunity cost is perceived by Soviet leadership and society . . . To understand the burden of defense in any useful sense we need to know much more about how such conflicting

<sup>17</sup> NASA fiscal year 1976 Hearings, pp. 501-2.

<sup>18</sup> Ibid., p. 502.

and reinforcing views work themselves out in the Soviet system. The answer to this sort of question depends upon an understanding of the internal bureaucratic and organizational politics of the decision process which determine the allocation of resources . . . the perceived burden of defense may be increasing over time even though defense takes but a constant or declining share of GNP. Therefore, it is impossible to address the problem of the burden, or the Soviet perception of the burden, without knowing how strongly the Soviet leadership in general, or subgroups of it, are attached to some alternative goals that could be obtained by diverting resources from defense even if the efficiency of the shift of resources is low. Until much more progress is made in these broader dimensions of the burden issue, statements to the effect that the burden of defense upon the Soviets is great or small will not be persuasive.<sup>19</sup>

Thus, in estimating the economic burden of the Soviet space program, simple dollar estimates are insufficient. Unfortunately, we cannot determine Soviet perceptions of opportunity costs with great precision. However, our knowledge of Soviet "internal and bureaucratic and organizational politics" does provide a basis for determining whose perceptions of opportunity costs are most important. Moreover, various policy statements and official economic plans give some insights, if not hard evidence, of what priorities are attached to competing economic goals.

#### B. PARTY PRIMACY IN SPACE POLICY

Who decides or rules in the Soviet Union? In priority objectives, such as military and space programs, the dominant role is clearly played by the Politburo of the Party's Central Committee and particularly by the General Secretary, Leonid Brezhnev. However, given the size and complexity of the Soviet scientific research effort in these areas, Party leaders undoubtedly rely heavily on scientists for advice on funding priorities. In a speech to the Soviet Academy of Sciences, on the occasion of its 250th anniversary, Brezhnev described the interaction of the Party leadership and Soviet scientists in planning and carrying out scientific programs:

Scientists and specialists in the various branches of the natural sciences, technology and the social sciences have given and are continuing to give the Party enormous help in accomplishing all these tasks and in working out plans and implementing them. For this, the Party gives them all heartfelt thanks.

However, comrades, in the future you will have to work even more, more persistently and more effectively. We have no intention of dictating to you the details of research topics and the ways and means of research—that is a matter for the scientists themselves. But the main directions of the development of science, the main tasks that life poses, will be determined jointly.<sup>20</sup>

Brezhnev's reference to "jointly" determining the directions of scientific research may be a euphemistic reassertion of the Party's preeminent role in this realm. Yet, this moderate formulation probably reflects a growing role for the professional scientist in Soviet science administration. This development represents a gradual departure from the scientists' past subordination to the authoritarian demands or arbitrary whims of the Party leadership.

The significance of an enhanced role for Soviet scientists is that their perception of opportunity costs must have some influence on Party decision-makers who establish economic priorities. Their preferences are weighed against those of other institutional groups, such as the military, industrial managers, and economic planners, by the Party

<sup>19</sup> Allocation, 1975, pp. 164-165.

<sup>20</sup> Pravda, October 8, 1975.



leadership, which makes the final decisions on the broad allocation of resources.

How do Soviet scientists view the burden of the space program? While this question is not openly discussed in the Soviet press, there is evidence that there are highly divergent views. Some dissident Soviet scientists, like Andrey Sakharov, while not singling out the space program, have publicly opposed the general Party line on resource allocations. Perhaps a more common view among Soviet scientists is that a disproportionate share of science funds are devoted to space. Soviet space scientist, Leonid I. Sedov, writing in 1971, supported large expenditures on space, while complaining that:

"One runs into the point of view that space research is a luxury and that the heavy allocations spent on it should be applied in the satisfying of the critical needs on Earth—the fight against hunger and disease, the development of education, agriculture, and so forth."<sup>21</sup>

This and other references to critics of the space program suggest that Soviet scientists have been active in asserting their views. However, the rising space budget is evidence that scientists who support the space effort have been most influential on the Party leadership. Little has happened in recent years to suggest that Party leaders currently differ from Prime Minister Alexey Kosygin's assessment in 1965:

\* \* \* We don't have any contradictions in the Soviet Union between appropriations for space research and for the needs of the population, or education and such. They are a negligible part of overall expenditure. Space expenses do not detract from the needs of the population.<sup>22</sup>

Thus, budget-cutters have not had the same impact on Soviet space expenditures as in the United States. To some extent, however, the shape and content of the Soviet space program may reflect the various competing demands for the investment ruble. There has, for example, been an emphasis on minimizing the most expensive space activities, such as the U.S. Apollo program and manned flight in general. There has also been a concerted effort to emphasize programs with practical economic applications, though the Soviets appear to have been less successful than the United States in this effort.<sup>23</sup> Finally, there has been a strong preference for military space missions, suggesting that the priority assigned to space spending has in large part reflected the Party leadership's perception of the military-strategic benefits of the space program.<sup>23a</sup>

#### C. AN ONEROUS OR TOLERABLE BURDEN OF MILITARY SPACE

The estimates of both the CIA and the Department of Defense indicate a rising volume of outlays, an increasing relative share of space to defense programs, and an increasing share of space to total output (GNP). Assuming most of the current estimates are made on the basis of programs completed and visible, therefore representing commitments of some years ago, current commitments since the first Brezhnev-Nixon summit in May 1972 and the initiation of U.S.-Soviet cooperation in space are subject to some speculation. Former Secretary of

<sup>21</sup> Novoe Vremia (New Times), February 1971.

<sup>22</sup> Interview with James Reston, New York Times, Dec. 8, 1965, p. 20.

<sup>23</sup> Lani Hummel Raleigh, Soviet Application of Space to the Economy, in Volume One of this report.

<sup>23a</sup> Cf. H. Kissinger "The defense establishment we have today is the product of decisions taken 10 to 15 years ago", speech before World Affairs Council at Southern Methodist University March 22, 1976 entitled "Foreign Policy and National Security."



Defense James Schlesinger noted in congressional testimony that the U.S.S.R. was engaged in a major program for building up their strategic systems. This, if true, may or may not represent decisions or commitments postdating the initiation of the new relationship referred to as *détente*.

Whether the Soviet leaders will or have committed themselves to relatively and absolutely larger outlays for military and space programs turns on their perception of the utility of an increase in the number and quality of their military and space hardware. The U.S. intelligence community has made widely differing assessments of the political utility to the Soviet leadership of expanding military-space strategic systems. Two widely differing assessments, which might be characterized as the "Soviet superiority" school and the "diminishing marginal political utility" school, illustrate the range of options open to the Soviet leadership. The "Soviet superiority" school contends that:

The Soviet Union has the capacity to expand military-space strategic systems to a level which assures strategic superiority over the United States in the near future. Such strategic superiority can be translated into Soviet political hegemony in various important geographical areas, including West Europe, Asia, and the Mediterranean. Thus, large military-space expenditures may promise such great political benefits that they will be unconstrained by the demands of hard-pressed civilian sectors of the Soviet economy.

The "diminishing marginal political utility" school contends that:

The incremental costs of new military and space programs have become so high and the political utility so low that stabilization or reduction of those priority programs is now considered desirable. In this context the tradeoff between new programs in military space and new civilian investment programs may even favor the latter. At least they would be considered as serious alternatives.

To be sure, these views are oversimplified to suggest the range in official U.S. intelligence assessments of Soviet leadership perceptions. The former school of thought, for example, approximates the views of some Department of Defense observers. A recent Defense Intelligence Agency document asserts:

\* \* \* The expansion of Soviet strategic capabilities, combined with the limited value Western strategists generally accord marginal nuclear advantages, has permitted the Soviets to achieve a nuclear force stature that canceled out long-held U.S. numerical superiority.

The considerable momentum of Soviet nuclear weapons programs holds the promise of attaining a politically meaningful strategic edge.<sup>24</sup>

The "diminishing marginal political utility" school, on the other hand, comes close to Secretary of State Kissinger's contention that:

\* \* \* both we and the Soviet Union have begun to find that each increment of power does not necessarily represent an increment of usable political strength.<sup>25</sup>

If the "Soviet superiority" view were deemed accurate, the notion of burden, opportunity costs or tradeoffs between military-space programs and civilian investment would not seem very relevant. If military superiority were attainable and its fruits could be translated in meaningful political shifts in power relationships, the Soviet leadership priorities would probably be clearly in favor of the traditional "guns" or military-space programs. However, if the latter perception of rising cost-diminishing utility is accurate, a reduction of relative military-space claims on resources is eminently logical.

<sup>24</sup> "Detente in Soviet Strategy." Statement released by the Defense Intelligence Agency in October 1975.

<sup>25</sup> Kissinger briefing to congressional leaders, Congressional Record, June 19, 1972, p. S9600.

Unfortunately, we do not have sufficient knowledge of the Soviet leadership's motivations to determine which of these views is closest to Soviet perceptions. Moreover, we might accept the absolute preference for military-space on quite different ground, i.e. the Soviet leaders may consider themselves inferior and required to press ahead to attain their version of parity. Paradoxically, their view of their inferiority may be assessed in our military planning councils as superiority. This possible Soviet exaggeration of a need for defense against attack from the air may be recently reinforced by the China concern which converted their traditional European ground invasion phobia into a revived two front threat.<sup>26</sup>

#### D. OPPORTUNITY COSTS: MILITARY-SPACE VS. INVESTMENT FOR GROWTH

Assuming the high marginal cost-low political utility of military-space programs is the Soviet leadership perception we might consider what civilian options are at stake. In preparing for the tenth Five-Year Plan (1976-1980) unveiled by Party directives prior to the 25th Party Congress in February 1976, the requirements for increased investment may run well ahead of the anticipated annual growth rate of about 5 percent.<sup>27</sup>

Some of the pressing claimants for more investment are the following:

1. Development of Siberian oil and natural gas reserves.
2. Construction of the Baykal Amur railroad in the inhospitable sub-Arctic areas of East Siberia and the Far East, coupled with the expansion of materials output (timber, ore, etc.) and industry in the regions opened by the railroad.
3. Expansion of the East Siberian hydroelectric based grid and related energy consuming industries, such as aluminum, steel, and copper.
4. Increased investment in agriculture to open the new nonblack soil lands to cultivation and to provide more fertilizer and machinery to reduce the harvest losses and augment productivity.
5. Establishment of a modern animal husbandry system for expanded meat output.
6. Expansion of production facilities and infrastructure to permit the extended use of motor cargo transport and passenger car use.
7. Construction of hotels and other tourist facilities to accommodate the 1980 summer Olympics.
8. Expansion of merchant fleets, tanker facilities, port facilities, and fishing fleets to meet transportation and food requirements.

Post-Stalin Soviet leaders have shown an increasing concern about progress in civilian industries, transportation and agriculture. Yet, even with a significant increase in the civilian share of investment funds, it will be difficult to meet the pressing needs of those sectors of the economy. Thus, it would seem clear that the opportunity costs of diverting resources to military and space programs should be very high for Soviet decision-makers. However, if military and space

<sup>26</sup> Colby (1975), op. cit., p. 33.

<sup>27</sup> Pravda, December 14, 1975; A. Kosygin, Pravda, March 7, 1976. Although 1-2 percent of the Soviet GNP to space programs may seem small, its funding level may represent the critical margin for attainment of important civilian goals in the new plan.

superiority is deemed to be an attainable and desirable goal or defensive needs are overriding, the cost may be bearable. The plans for economic development for the 1976-1980 period, discussed at the 25th Party Congress, are looked at with considerable interest to estimate what priorities may be assigned to attaining these alternative goals.

#### E. MILITARY OR CIVILIAN SPACE

If Soviet space and military programs are to be slowed down, one might expect the military space share to retain or expand its portion compared to the civilian space programs, as has been the case in the past. However, if the U.S.-U.S.S.R. cooperative program continues and expands, its focus on civilian programs may provide an incentive for the Soviets to maintain their civilian program. In order to benefit from the American program and to keep the prestige of a proud scientific community intact, Soviet leaders may show an uncharacteristic preference for the visible, civilian program. If, then, the Soviet leaders were to move toward a cooperative U.S.-U.S.S.R. space shuttle program, the civilian space program might be among the higher priority claimants.<sup>28</sup>

#### V. FUTURE PROSPECTS

The priority accorded Soviet space programs in the planning period ahead will probably depend primarily on the leadership's perception on the economic costs and political benefits of new programs. If considerable political gain is possible in the world arena, the high priority for military space will continue and even increase. If the gains are of questionable value in the international balance of power, the pressing claims of alternative civilian investment programs are likely to dominate. In that environment, serious negotiations as arms limitations seem likely.

If arms limitations are negotiated, further cooperation in space between the United States and the Soviet Union seems likely. In that event, civilian space programs related to the exchanges are probably in for some increase in priority.

<sup>28</sup> Lani Raleigh, *op. cit.*, in this Volume I of this report.



## CHAPTER FOUR

### SOVIET ATTITUDE TOWARD INTERNATIONAL COOPERATION IN SPACE

By Joseph G. Whelan\* and Francis T. Miko\*

#### I. SPACE COOPERATION: AN IDEA WHOSE TIME HAD COME

##### A. APOLLO-SOYUZ TEST PROJECT AN ACHIEVED GOAL

At 12:09 P.M., Eastern Daylight Time, about 225 km over the Atlantic Ocean and 1,000 km west of Portugal, the American Apollo spacecraft made physical contact with the Soviet Soyuz. Three and a half minutes later, the two spaceships were firmly linked. "We have capture," Brig. Gen. Thomas P. Stafford, USAF, commander of Apollo, radioed in Russian to Col. Aleksey A. Leonov, the Soyuz commander. "Well done, Tom, it was a good show," responded Leonov in English.

More than three hours and two Earth orbits later the Soviet and American crews met face to face as their linked spaceships were passing over Amsterdam. Looking through the opened hatches into Apollo's connecting module, Leonov welcomed Stafford with the English words, "Glad to see you." Replying in Russian, Stafford said, "Ah, hello, very glad to see you." The two cosmo-astronauts then shook hands, a symbolic gesture signaling an expressed Soviet-American desire to cooperate in space exploration, an event unthinkable a few years ago. Stafford and his fellow astronaut Donald K. Slayton crawled into the Soyuz spacecraft where they presented a gift of flags to the Soviet cosmonauts, listened to messages from the leaders of their respective countries, and ate lunch.<sup>1</sup>

Thus was achieved a goal in space cooperation that the Soviet Union and the United States had been working toward since October 1970 when a plan to define the technical requirements for compatible rendezvous and docking systems in a joint mission was first formulated at a meeting in Moscow of senior National Aeronautics and Space Administration (NASA) officials and representatives of the Soviet Academy of Sciences. It was a dramatic moment in Soviet-American space relations, remarkable as much as an achievement in politics as it was an achievement in space science and technology. It was an idea long in gestation whose time had finally come.

##### B. FOCUS OF CHAPTER

This chapter focuses mainly on the Soviet attitude toward international cooperation in space. Essentially, it is designed to continue

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<sup>1</sup> Wilford, John Noble. U.S. and Soviet Astronauts Unite Ships and Then Join in Historic Handshakes. *New York Times*, July 18, 1975:1.

along the same lines of inquiry as those in the previous committee study on Soviet space programs, 1966-1970.<sup>2</sup>

Like the previous study, the present effort seeks only to demonstrate the Soviet attitude toward space cooperation; that is, to record certain activities of their primary interest and in general to suggest the tone, quality, and main lines of their interest and activity. It is not intended to be a detailed history.

Special attention has been given to bilateral cooperation between the Soviet Union and the United States. Soviet efforts to expand its co-operative relationship with France, partly relating to space, and to create new arrangements with India and other countries, are recorded. Soviet attempts to strengthen the organizational mechanism for space cooperation within the Communist Bloc are also examined. Other miscellaneous activities are mentioned only to demonstrate the range and versatility of Soviet interest in space cooperation. The chapter concludes with a statement of generalizations on what appears to be current realities and future prospects for space cooperation with the Soviet Union.

## II. SOVIET-AMERICAN BILATERAL SPACE COOPERATION

### A. ORIGINS OF THE APOLLO-SOYUZ TEST PROJECT

The Apollo-Soyuz joint mission of July 1975 was the most significant event in Soviet-American bilateral space cooperation during the period 1971-1975. The origins of the idea are unclear. According to one account, the idea was apparently first proposed publicly in 1966 by Jess Gorkin, editor of *Parade* magazine in an open letter to President Lyndon B. Johnson. The idea germinated within the American official space hierarchy, and in 1969 Astronaut Frank Borman, having successfully completed the circumlunar flight of Apollo 8, was touring the Soviet Union when he proposed a joint flight to Soviet Cosmonaut German Titov and Dr. Boris Petrov, Chairman of the Soviet Academy of Sciences Committee on Manned Flight.

Though attracted to the idea, the Russians hesitated. Reportedly what convinced them that the idea was mutually useful was the film *Marooned* based on a popular 1964 space novel by the American science writer Martin Caidin. The film's principal theme was the rescue by Soviet cosmonauts of American astronauts stranded in orbit. Dr. Philip Handler, President of the National Academy of Sciences, saw the film in the spring of 1970 and on a later trip to Moscow reportedly described it "glowingly" to his counterparts at the Soviet Academy of Sciences. The idea of having a common international docking mechanism appealed to the Soviets, then having problems with their Soyuz program.<sup>3</sup>

According to Dr. George M. Low, Deputy Administrator of NASA, the joint mission during 1975 culminated a series of events that had begun on April 24, 1970. Dr. Thomas O. Paine, then Administrator of NASA, suggested to Soviet Academician Blagonravov during an informal meeting in New York the possibility of cooperation in the

<sup>2</sup> Senate Committee on Aeronautical and Space Sciences. Soviet Space Programs, 1966-1970, Chapter 11, p. 399-452.

<sup>3</sup> Hamer, John. Cooperation in Space. Editorial Research Reports, v. 2, no. 1, July 4, 1975: 490.

area of astronaut safety, including the design of compatible docking fixtures. Shortly thereafter, in May 1970, Dr. Handler conveyed American interest to Dr. Keldysh, President of the Soviet Academy of Sciences. On July 31, Dr. Paine suggested directly to Keldysh that this possibility be taken under consideration. Formal negotiations on possible docking arrangements began in Moscow during October 26–28, 1970 between Dr. Robert Gilruth of NASA and Academician Boris Petrov.<sup>4</sup>

## B. EARLY SPACE COOPERATION AND ASTP AGREEMENTS, 1970–1971

### 1. *Gilruth-Petrov Meeting, October 1970*

The Gilruth-Petrov talks in October 1970 were described as “direct, substantive and businesslike throughout.” An agreement was reached providing for procedures by which both countries, through a combination of independent action and coordination, could arrive at compatible systems. Joint working groups were established which, in the course of a series of meetings, developed the technical understandings required for the design of compatible rendezvous and docking systems.<sup>5</sup>

They agreed that studies should be made of the technical and economic implications of flight experiments to test the technical solutions for compatible systems. In December 1971, they agreed that a test mission was technically feasible.<sup>6</sup>

### 2. *Keldysh-Low Meeting, January 1971*

*a. Terms of agreement.*—Broader talks on Soviet-American cooperation in space science and applications took place during January 18–21, 1971 between Dr. Keldysh and Dr. Low. They affirmed the results of the Gilruth-Petrov discussions. The intent of the negotiations was contained in the opening paragraph of the “Summary of Results” of the conference. The document stated that the Soviet Academy of Sciences and NASA:

Consider that the expansion of cooperation between the Soviet Union and the United States in space research and exploration can speed acquisition of knowledge of the Earth’s environment and surface features, increase opportunities to apply that knowledge for the benefit of man on Earth, contribute to the efficient planning of the scientific exploration of the universe, enhance the safety of man in space and permit application of biomedical knowledge gained from manned space flight to the well-being of man on Earth.

Accordingly, Keldysh and Low, together with leading representatives of the concerned agencies of their respective countries, held a series of meetings to exchange views on possible directions for increased cooperation between the Soviet Union and the United States in exploring and using outer space for peaceful purposes. During the meetings both sides “took note of the significance of past agreements between them and in particular the understanding of October 28, 1970 with regard to the question of providing for the compatibility of rendezvous and docking systems of manned spacecraft and space stations of both countries.”

<sup>4</sup> U.S. Congress, Senate, Committee on Aeronautical and Space Sciences, *Space Agreements with the Soviet Union*, Hearing, 92nd Congress, 2nd session, Washington, U.S. Govt. Print. Off., June 23, 1972, p. 16, 70. (Hereafter cited as, *Senate Space Committee, Space Agreements with the Soviet Union*.)

<sup>5</sup> *Senate Aeronautical and Space Sciences Committee, Space Agreements with the Soviet Union*, pp. 72–73.

<sup>6</sup> Information provided by NASA.



In the current series of meetings, the Soviet Academy of Sciences and NASA agreed to undertake certain cooperative actions and to consider jointly further possibilities for cooperation, including:

- An exchange of lunar samples obtained in the Apollo and Luna programs.
- Direct efforts by the U.S. National Oceanographic and Atmospheric Agency and the Soviet Hydrometeorological Service to improve the exchange of weather satellite data, dating from 1964, so as to achieve operational utility.
- Coordination of networks of meteorological rocket soundings along selected meridional lines.
- Development of a program for coordinated surface, air and space research over specified international water areas and exchange of results of coordinated measurements made by each country over similar land sites in their respective territories. The objective was to utilize space and conventional Earth resources survey techniques to investigate the natural environment in areas of common interest, beginning with the oceans and vegetation.
- Joint consideration of the most important scientific objectives for the rapid exchange of results from the scientific investigations of near-Earth space, the Moon and the planets, allowing each country to take the objectives and work of the other into account in planning its own program.
- Exchange of detailed medical information of man's reaction to the space environment.

The agreement also called for setting up joint working groups to recommend and work out procedures for fulfilling the purposes of the agreement. According to an official American source, these working groups met on a "business-like basis." On March 26, 1971, the agreement was confirmed in an exchange of letters by Dr. Low and Academician Keldysh.<sup>7</sup>

*b. Early results of January 1971 agreement.*—V. Vereshchetin, Deputy Chairman of the Soviet Academy of Sciences' Interkosmos Council, referred to these initial agreements as evidence of "a tangible swing toward the developing and deepening of Soviet-American cooperation in outer space."<sup>8</sup>

Indeed this was the case. Early results of the January 1971 agreement included the following:

- On June 10, 1971, lunar samples returned by Luna 16 and Apollos 11 and 12 were exchanged in Moscow,
- During August 2-6, 1971, the Joint Working Group on the Natural Environment recommended a number of analogous and complementary land sites in each country for the conduct of multipurpose aerospace and field experiments on the environment,
- During November 16, 1971-May 5, 1972, a "real-time" exchange of significant findings by the U.S. Mariner 9 and Soviet Mars 2 and 3 probes occurred,
- On January 19, 1972, lunar samples retrieved by Apollo 14 were provided to the Soviet Union at the Manned Spacecraft Center in Houston, and

<sup>7</sup> Senate Space Committee, *Space Agreements with the Soviet Union*, p. 43-45 and 72-73.

<sup>8</sup> Vereshchetin, V. *USSR-USA: Cooperation in Space*. International Affairs (Moscow), Aug. 1975:33.

—On April 13, 1972, a lunar sample returned by Luna 20 and a remaining Apollo 15 sample were exchanged in Moscow.<sup>9</sup>

c. *Soviet reactions to January 1971 agreement.*—On the occasion of the Keldysh-Low meeting in January 1971, the Russians had little more to say in the press beyond recording the essence of the agreement reached, and then doing so in a straightforward, factual manner.<sup>10</sup>

As Chapter One pointed out, the meeting took place in a period of tension in Soviet-American relations; the reaction was, therefore, consistent with the prevailing critical tone of Soviet communications media. Nonetheless, Soviet space leaders advanced the principle of international space cooperation, citing among other instances of space cooperation the Soviet-American experience. Cosmonautics Day, April 12, provided such an occasion in 1971. In commemorating Soviet space achievements, Dr. Keldysh acknowledged that the problems modern science presented to cosmonautics had become "increasingly complicated every year." The complexity of research and experiments in coping with the phenomena of space, he said, "make it increasingly urgent to develop cooperation among scientists from various countries in the field of research into and exploration of outer space." He noted that the Soviet Union was "successfully developing cooperation in these matters with the Socialist countries and with France." Alluding to the January agreements, he indicated that "the first steps have been made toward such cooperation with the United States."<sup>11</sup>

Dr. Boris Petrov made a similar statement on the complexity of space research and the necessity of international space cooperation. "Space research is assuming a more and more complex nature," he wrote in *Pravda*. "Under these conditions the development of cooperation between scientists and specialists of different countries," he emphasized, "is becoming urgent." He described aspects of space cooperation with the Socialist states and France, and with regard to the U.S., he observed, alluding to the January agreements: "Agreement has been reached on the development of cooperation between the U.S.S.R. and the United States in certain directions of space research."<sup>12</sup> Following the Moscow summit of May 1972, perhaps the starting point of detente, Petrov responded more warmly to inquiries on Soviet-American space cooperation and recorded in detail the degree of cooperation since the January 1971 agreement.<sup>13</sup>

<sup>9</sup> Senate Space Committee, *Space Agreements with the Soviet Union*, p. 57.

<sup>10</sup> *Pravda*, Moscow, Jan. 22, 1971:4, translated in, *Current Digest of the Soviet Press*, v. 23, no. 3, Feb. 16, 1971:26-27.

<sup>11</sup> Moscow Domestic Service, April 12, 1971.

<sup>12</sup> Petrov, B. Looking into the Future. *Pravda*, Moscow, April 12, 1971:3.

<sup>13</sup> Asked to comment on aspects of Soviet-American space cooperation in the past, Petrov stated that contacts began at the time when the first Soviet satellite was launched. Space scientists first began to exchange views and findings of their experiments at international conferences. He generalized: "Fathoming the secrets of the Universe and study of outer space in the vicinity of our planet is of vast interest to the scientists of all countries and requires international effort." Petrov continued: "Gradually our contacts acquired an organized character. In January 1971 the U.S.S.R. Academy of Sciences and the U.S. National Aeronautics and Space Administration concluded an agreement on co-operation in the study of outer space for peaceful purposes. The agreement also provides for cooperation in space meteorology, biology and medicine. Since then there has been systematic exchange of information, for instance, on the experiments conducted with the Soviet Mars-2 and Mars-3 stations and the American Mariner-9, and on radar studies of Venus made in the U.S.S.R. and of Mars made in the United States. The two countries have exchanged catalogues of lunar maps, photographs of the lunar surface and samples of moon rock. We have begun exchanging meteorological findings obtained with satellites and rockets, and a joint study on space biology and medicine is in preparation. Co-ordinated experiments on thermal atmosphere soundings from satellites in both countries are projected. This promises to be an important contribution to space meteorology."

Turning to the May 1972 agreement, he continued: "An important subject of the preliminary talks were the technical aspects of compatible rendezvous and docking systems, final agreement on the development of which is now recorded in the May 24 agreement." (Joint Soviet-American Space Research. Interview with Academician Boris Petrov. *New Times*, no. 23, June 1972:6.)



## C. AGREEMENTS AT THE MOSCOW SUMMIT, MAY 1972

1. *Impact of Emerging Detente*

General Secretary Brezhnev termed the Moscow summit of May 1972 and the agreements signed there "a turning point in Soviet-American relations from confrontation to detente, normalization and mutually beneficial cooperation."<sup>14</sup> Whether the Brezhnev-Nixon summit was, indeed, a turning point or a Soviet tactical pivot may be debatable in the long term, but with the perspective of three years' experience the Brezhnev assessment appears to have some justification. For the Moscow summit provided the main stimulus for detente in Soviet-American relations; it was the starting point, if one need be designated; and from it issued many significant agreements of which space cooperation was one of the most important. Agreement on expanding space cooperation was, therefore, a product of the improving political environment in Soviet-American relations: detente had now been extended to outer space.

2. *Agreements on Space Cooperation*

a. *Low-Kotelnikov meeting, April 4-6, 1972.*—Prior to the Brezhnev-Nixon summit, Dr. Low and Academician V. A. Kotelnikov, Acting President of the Soviet Academy of Sciences, conferred in Moscow on questions relating to the development of compatible rendezvous and docking systems for manned spacecraft and space stations. The results of the meeting have been summarized as follows:

- confirmed the desirability of conducting a test mission using existing spacecraft in 1975; and
- accepted, as the basis for joint specification of management and operational guidelines for the joint mission, documents on "Proposed Organization Plan for the Apollo/Soyuz Test Mission," "Apollo/Soyuz Test Mission Considerations," "A Project Technical Proposal Document," and "A Project Schedule Document."

In addition, the conferees agreed on specific principles that would apply during the preparatory and operational periods:

- frequent direct contact between project personnel on both sides;
- detailed commitments to schedules;
- a comprehensive test, qualification, training and simulation program;
- involvement of mission flight and ground crew personnel in joint working groups two years before the mission;
- engineering agreement in July 1972;
- control of own spacecraft and spacecraft situations, with certain pre-planned guidelines to be worked out;
- consultation on control actions affecting joint elements of the mission;
- pre-planned in-flight information exchanges, including TV;
- reciprocal language familiarity among flight crews; and
- a public information program respecting the policies and practices of both sides.<sup>15</sup>

<sup>14</sup> Quoted in, Vereshchetin, op. cit., p. 33.

<sup>15</sup> Senate Space Committee, *Space Agreements with the Soviet Union*, p. 58-62. See p. 58-60 for text of "Summary of Results" of the meeting.



*b. Moscow summit agreement on space cooperation, May 24, 1972.—*

By and large the various Soviet-American space agreements were concluded on an agency-to-agency basis, that is, between NASA and the Soviet Academy of Sciences. In some instances agreements of this type were given higher status by being elevated to a more formal Government-to-Government level. The Keldysh-Low agreement of January 21, 1971 is a case in point. This agreement was included in the general agreement of April 11, 1972 on "Exchanges and Cooperation in Scientific, Technical, Educational, Cultural and Other Fields for 1972-73." The change of status was done to emphasize the importance of Soviet-American cooperation in space.<sup>16</sup>

President Nixon's visit to Moscow in May 1972 provided the Soviet Union and the United States an opportunity to pull the many agreements together, negotiated on an agency-to-agency basis, agree to a rendezvous and docking mission, and give the entire space package the status of an executive agreement between the two Governments. This was done under the title, "Agreement between the United States of America and the Union of Soviet Socialist Republics Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes, May 24, 1972."<sup>17</sup>

*c. Terms of the Moscow agreement on space cooperation.—*The comprehensive agreement of May 24, 1972 on Soviet-American space cooperation was signed by President Nixon and Alexey N. Kosygin in his capacity as Chairman of the U.S.S.R. Council of Ministers.

In the preamble to the agreement both sides acknowledged their roles in the exploration and use of outer space for peaceful purposes; indicated their mutual desire to expand space cooperation for peaceful purposes; and took note of the "positive cooperation" that the parties had already experienced in this area.

The preamble also expressed the desire of both sides to make the results of their space research for peaceful purposes available for the benefit of the Soviet and American people and also for the benefit "of all peoples of the world." They took into consideration the provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, as well as the Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space.

Finally, the preamble referred to the Agreement on Exchanges and Cooperation in Scientific, Technical, Education, Cultural, and Other Fields signed on April 11, 1972, and noted the desire of both sides to develop further the principles of "mutually beneficial cooperation" between the two countries.

According to the terms of Article 1, the Soviet Union and the United States pledged to develop cooperation in the fields of space meteorology; the study of the natural environment; the exploration of near space, the Moon and the planets; and in space biology and medicine. In particular, they agreed to cooperate in taking "all appropriate measures to encourage and achieve fulfillment" of the Low-Keldysh agreement of January 21, 1971.

<sup>16</sup> Senate Space Committee, *Space Agreements with the Soviet Union*, p. 40. The text of the agreement of April 11, 1972 is reproduced in Chapter V, p. 74-81.

<sup>17</sup> *Ibid.*, p. 40.

Under the terms of Article 2, the parties agreed to carry out their agreed cooperation by means of mutual exchanges of scientific information and delegations, through meetings of scientists and specialists of both countries, and in other mutually agreed ways. Joint working groups could be created, it said, for developing and carrying out appropriate programs of cooperation.

Article 3 focused entirely on Apollo-Soyuz Test Project (ASTP). It stated that the parties agreed to carry out projects for developing compatible rendezvous and docking systems of Soviet-American manned spacecraft and stations. The purpose of the joint project was, (1) to "enhance the safety of manned flights in space," and (2) "provide the opportunity for conducting joint scientific experiments in the future." The first experimental flight was set for 1975; it envisaged the docking of an Apollo-Soyuz spacecraft with mutual visits by the cosmo-astronauts. The projects were to be carried out on the basis of principles and procedures set forth in the Low-Kotelnikov agreement of April 6, 1972 that established basic requirements for ASTP.

Article 4 encouraged international efforts to resolve problems of international space law in order to strengthen the legal order in space and develop further international space law. Article 5 noted that by mutual agreement both sides could determine other areas of space cooperation and exploration for peaceful purposes.<sup>18</sup>

Thus by mutual agreement, signed at the highest level of Government, the Soviet Union and the United States established the basic terms of reference for carrying on space cooperation generally and particularly for setting into motion officially the joint Apollo-Soyuz mission.

### 3. Soviet Attitude Toward May 1972 Agreement

a. *Immediate reaction.*—The Soviet Union enthusiastically supported the May 24 agreement on space cooperation. The agreement was linked with the others that were signed at the Moscow summit; they were represented as a collective manifestation of the Soviet desire for detente. Peaceful coexistence was the dominating theme in the immediate Soviet reaction. For Brezhnev the Moscow summit was a turning point from cold war and confrontation to detente and peaceful coexistence.

On the evening of May 24, L. M. Zamyatin, Director of the Press Center in Moscow, said in a press briefing of the day's proceedings that the Soviet leaders believed the agreements concluded on environmental protection, space cooperation, scientific and technical cooperation, and cooperation in the field of medicine and public health "have great importance for the development of Soviet-American relations." He continued:

The Soviet leaders feel it is necessary to emphasize that these first agreements achieved as a result of the talks now under way in Moscow covers areas in which millions and millions of people, virtually all mankind, have an interest: medicine, space, environmental protection, and scientific and technical cooperation. In essence, the agreements are aimed at utilizing Soviet-American cooperation in the interests of the peoples of the Soviet Union, the U.S.A. and the other countries of the world, and in the interests of strengthening international cooperation.<sup>19</sup>

<sup>18</sup> Text of agreement, *ibid.*, p. 41-42.

<sup>19</sup> *Izvestiya*, Moscow, May 26, 1972:2, translated in *Current Digest of the Soviet Press*, v.24, no. 21, June 21 1972:4.



In a speech at the American Embassy on May 26 given in honor of the Soviet leaders, Soviet Premier Kosygin soberly acknowledged that the talks revealed more precisely the areas in which cooperation could be developed and areas where positions were "at variance," since both countries "objectively represent different social and economic systems in the world." "It seems to us," he went on, "that both sides take a realistic view of the possible prospects of cooperation." Accenting the positive, Kosygin observed:

A number of Soviet-American agreements designed to serve peaceful aims have been signed in the past few days. In particular, we have reached agreement on pooling the efforts of our countries in protecting the environment, in the peaceful exploration and mastery of outer space, and on cooperation in the fields of science and technology and of medicine and public health.<sup>20</sup>

To Academician Petrov the May 24 agreement was "a very important step forward in international scientific and technological cooperation in the study of the Universe, and one with a bearing on the fundamental areas of technological progress in general." Petrov believed that the agreement "opens up good prospects for other joint projects." He acknowledged that this required "further serious and concrete examination of diverse possible programmes." In Petrov's mind outer space "offers a truly boundless field for a wide range of research undertakings."<sup>21</sup>

*b. Taking a retrospective view.*—Taking a retrospective view of the agreement nearly a year later, Dr. Petrov said that it was "difficult to overestimate the importance of this agreement, which has already come into force." He summarized the essence of the agreement and noted the particular areas covered for cooperation. Summing up the importance of the agreement, he stated that it "pursues humanitarian objectives in that it seeks to increase the safety of man's flights into the cosmos" and that it "is aimed at providing further possibilities for joint scientific experiments in the future."<sup>22</sup>

The Washington summit during June 1973 affirmed the May 1972 agreement. General Secretary Brezhnev and President Nixon reviewed the areas of Soviet-American bilateral cooperation established by the agreement, among which was the pledge of space cooperation. "They noted that those agreements are being satisfactorily carried out in practice in accordance with the programs as adopted," the final communique said.<sup>23</sup>

Speaking at a dinner in the Soviet Embassy on June 21, 1973 in honor of the President Nixon, Brezhnev referred approvingly to the series of agreements on cooperation in various fields of science and technology. Alluding to the upcoming ASTP mission, he made a statement, often to be repeated on the occasion of the joint spaceflight, that affirmed the intentions of the May 1972 agreement and joined the

<sup>20</sup> Pravda, Moscow, May 27, 1972: 4 and Izvestia, Moscow, May 28, 1972: 2, translated in Current Digest of the Soviet Press, v. 24, no. 21, June 21, 1972: 7-8. Favorable comments by Soviet scientists were recorded in Trud of June 2 and Pravda of May 31. (Ibid., p. 18.) The joint communique issued at the conclusion of the Moscow summit contained a paragraph on cooperation in space which summarized the main points in the May 24 Agreement. (Pravda and Izvestia, Moscow, May 31, 1972: 1-2, translated in Current Digest of the Soviet Press, v. 24, no. 22, June 21, 1972: 23-24.)

<sup>21</sup> Joint Soviet-American Space Research. Interview with Academician Boris Petrov. New Times, no. 23, June 1972: 7.

<sup>22</sup> Petrov, B. N. Prospects of Soviet-American Cooperation in Space. USA: Economics, Politics, Ideology (Moscow), no. 2, Feb. 1973: 3-11, translated in JPRS 58418, March 8, 1973: 5-6.

<sup>23</sup> The New York Times, June 26, 1973: 18.



purposes of space cooperation to the common Soviet-American search for peace. He said:

Two years from now, Soviet and American cosmonauts will fly into outer space to carry out the first major joint scientific experiment in the history of mankind. They know that from there, from outer space, our planet looks still more beautiful, but it looks small too. It is big enough so that we can live on it in peace, but it is too small to subject it to the threat of nuclear war.

I will not be mistaken if I say that the awareness of one main factor has determined the basic direction of our joint efforts: We must do everything so that the world's peoples will live free from war, will live in security, cooperation and communion with one another. This is the insistent command of our time. We must devote our joint efforts to this goal. . . .<sup>24</sup>

That the Soviet Union placed a high value on the May 1972 space agreement seems self-evident. Subsumed under the larger policy of detente, space cooperation, especially ASTP, had the virtue of high visibility and thus held a unique position in Soviet priorities. Clearly political gains were to be expected, and publicly expressed support of the principle was accordingly forthcoming.

#### *4. American Attitude Towards May 1972 Agreement*

*a. A View from the State Department.*—Like the Russians, American foreign policy and space officials, viewing the agreement from a perspective of national interest, warmly endorsed the space agreement and looked hopefully to its fulfillment in the future. Ever since the beginning of the Space Age, the United States has strongly advocated space cooperation not only with the Soviet Union but also with other countries of the world. Space cooperation was a cardinal principle in American space policy. Over the years American space officials initiated numerous programs of cooperation with the Soviet Union; they patiently pressed their case in Moscow, but with only very limited success.<sup>25</sup> In the era of detente, however, Soviet-American interests coalesced in the political realm, making possible great progress in the realm of space.

For American officials the May 1972 agreement was a real achievement, the culmination of strenuous efforts expended in the past to bring the Soviets into a design of space cooperation. This success engendered a spirit of optimism about future Soviet-American space relations. Speaking for the State Department, U. Alexis Johnson, Under Secretary for Political Affairs, cited several significant purposes that the agreement served in an appearance before the Senate Aeronautical and Space Sciences Committee. The agreement, he said,

—endorsed and confirmed at the highest level of the two Governments the understandings reached between NASA and the Soviet Academy of Sciences over the past 18 months of cooperation in such important areas of space science and application as space meteorology, the use of space techniques for the study of the Earth's environment, the future exploration of space and the Moon and planets, and space biology and medicine;

—it enabled the development of compatible rendezvous and docking systems, and would subject these systems to a joint test mission in space which should enhance the safety and value of spaceflight;

<sup>24</sup> Strengthen Peace and Security. *Pravda*, Moscow, June 23, 1975:2, translated in, *Current Digest of the Soviet press*, July 18, 1973:5.

<sup>25</sup> The record of Soviet-American space cooperation is contained in, Senate Space Committee, *Soviet Space Programs, 1962*, chapters V and VII; Senate Space Committee, *Soviet Space Programs, 1962-1965*, chapter V; and Senate Space Committee, *Soviet Space Programs, 1966-1970*, chapter XI.

—it opened the possibility of further areas of cooperation on the basis of mutual interest; and

—it demonstrated in full view of the world that the two great space powers “have both the will and the capability to work together on important and difficult tasks.”

“We have high hopes, Mr. Chairman,” Johnson said, “that this agreement will be a milestone in our relationship with the Soviet Union.” The agreement, he continued, provided a unique opportunity for cooperation; it served “our broad national purposes, as well as our specific foreign policy objectives with respect to the Soviet Union”; it was based on more than a decade of discussion and collaboration in space matters between the Soviet Union and the United States which illustrated that the agreement could be fulfilled “to our mutual benefit.”<sup>26</sup>

In summing up, Johnson remarked, “I believe that this agreement signed in Moscow is a prudent, workable, and highly desirable agreement which will serve both our foreign policy interests and our space program objectives.” He then introduced this “final, semipersonal word”:

\* \* \* may I say that we in the Department of State appreciate the support that this committee has given to the American space program. As I have said in the past, I think it has been a great national asset, and this agreement now with the Soviet Union opens up new vistas. It will be difficult for us to say—it would be difficult for anybody to say—what may finally result from this, because we are entering into a new relationship with the Soviet Union, and our space program enables us to make this entry into that new relationship. I personally have high hopes—it is only one step, of course, and there is only one program—but I have high hopes that it may bring about not only the practical advantages, but that . . . [it] may bring about a change in attitude in the peoples of both countries toward each other, just as Apollo 11 brought about a new change in attitude, I think, by many peoples in this world toward the United States and toward this world in which we live.<sup>27</sup>

*b. A view from NASA.*—Speaking for the American space community, Dr. Low told the Senate Committee that the agreement represented “considerable progress” in space cooperation, but it was only a beginning and much remained to be done. The agreement, he said, “should add force to cooperation between NASA and the Soviet Academy in space science and applications. We hope that it will accelerate progress.”<sup>28</sup>

Low summarized the technological, scientific, economic, and cultural purposes to be achieved through the agreement. Regarding the cultural, he anticipated that the ASTP mission “will further the cooperative efforts between the United States and U.S.S.R. and that it may encourage further international cooperation in space.” The technical and personal exchanges between the Soviet and American teams during the planning, development, training, and operations phases of the mission, as reported by the news media to the world, should have, he said, “a part in encouraging the spirit of cooperation.” Dr. Low went on to point out that the agreement on ASTP had the “potential of serving as a ‘take-off point’ for future U.S.-Soviet space activities.” Success in this mission, he believed, would open the way “for a wide range of possible cooperative activities.”<sup>29</sup>

<sup>26</sup> Senate Space Committee, *Space Agreements with the Soviet Union*, p. 3.

<sup>27</sup> *Ibid.*, p. 5-6.

<sup>28</sup> *Ibid.*, p. 15-16.

<sup>29</sup> *Ibid.* p. 33-34.



American officials, like their Soviet counterparts, looked upon the May 1972 agreement in a spirit of hopeful expectation. Joint communiques issued after the Moscow and Washington summits provided textual proof of a common resolve.

#### D. SOVIET-AMERICAN VIEWS OF ASTP, JULY 1975

##### 1. ASTP: "Central Effort" in Soviet-American Space Cooperation

a. *Other areas of space cooperation.*—In the period prior to ASTP, Soviet-American cooperation had extended into many areas of their space relations. As the communique stated on the occasion of the Nixon-Brezhnev meeting in Moscow during July 1974, "In accordance with existing agreements, fruitful cooperation is being carried out in a number of other fields related to the exploration of outer space."<sup>30</sup>

Illustrative of the areas of space cooperation beyond that of ASTP are the following:

—On February 12–17, 1973, the Joint Working Group on the Natural Environment conferred in Moscow. Scientists and engineers of both countries discussed the kinds of cooperation that could be carried on in the following disciplines: geology and geomorphology; vegetation, soils, and land use; water, snow, and glaciology; microwave techniques; and oceanology.<sup>31</sup>

—On February 26 to March 6, 1973, the Joint U.S./U.S.S.R. Working Group on Space Biology and Medicine held its third meeting in Moscow. One of the tasks of the group was to compare Soviet-American procedures for examining cosmo-astronauts before and after spaceflights and to learn from each other's experiences. Prior to this meeting of the group, members corresponded on evaluations they had made from space research on biological and biochemical functions. Detailed plans were developed for future cooperative research. Noteworthy is the fact that the American group visited not only Soviet facilities on medical research but also the Gagarin Center for Cosmonaut Training in Star City (Zvezdnyy Gorodok).<sup>32</sup>

—The Joint U.S./U.S.S.R. Working Group on Satellite Meteorology fixed its attention on an experiment in the Bering Sea to collect and evaluate information on the effects of sea ice and atmosphere on the weather.<sup>33</sup> (The Bering Sea experiment in which both U.S. and Soviet ships and aircraft participated was actually conducted in February–March 1973.)

—On January 29 to February 2, 1973, the Joint Working Group on Near-Earth Space, the Moon, and the planets, met in Moscow for the purpose of exchanging specified data with the objective of assisting both countries in their projected national planetary missions. Agreement was reached on what share each country should contribute to this joint project.<sup>34</sup>

Writing in August 1975, V. Vereshchetin, Deputy Chairman of the Interkosmos Council of the Soviet Academy of Sciences, gave the fol-

<sup>30</sup> Joint Soviet-American Communique. *Pravda* and *Izvestiya*, Moscow, July 4, 1974:1-2, translated in, *The Current Digest of the Soviet Press*, v. 26, no. 27, July 31, 1974:14.

<sup>31</sup> Material provided by Mrs. Eileen Galloway, Senior Specialist in International Relations, Congressional Research Service, Library of Congress, June 6, 1973.

<sup>32</sup> *Ibid.*

<sup>33</sup> *Ibid.*, and information provided by NASA.

<sup>34</sup> *Ibid.*



lowing retrospective glance from the Soviet view at the types of "concrete examples" that "show very well" the content of joint Soviet-American space cooperation:

The U.S.S.R. Academy of Sciences and NASA have exchanged specimens of lunar soil brought back to the Earth from various parts of the lunar surface by Soviet automatic stations and U.S. manned Apollo spacecraft. Specialists engaged in the study of the Moon have exchanged catalogues of lunar maps and photographs and have been working together on the basic principles for preparing such maps in the future.

During the flight to the Mars of the Soviet interplanetary stations Mars-2 and Mars-3 and the U.S. station Mariner-9 exchanges of information were held by teletype between Soviet and U.S. scientists on the phenomena recorded which were of scientific interest. Conferences organised in the U.S.S.R. and the U.S.A. discussed the main results obtained during the exploration of the Moon and the planets of the Solar system and also long-term scientific tasks.

Specialists of both countries are soon to start on a Soviet-American experiment in recording, collecting and processing scientific data on variations of the Earth's magnetic field with the aid of a U.S. geostationary satellite and a number of ground stations, some of which are located on the territory of the U.S.S.R.

The Soviet Union and the U.S.A. have regularly communicated to each other data obtained from rocket probes of the atmosphere, for use in day-to-day weather service reports and for scientific research in space meteorology.

In the spring of 1973, a Soviet-American experiment code-named Bering was staged in the Bering Sea area. With the aid of ships and planes from the two countries methods were being worked out for taking measurements which will subsequently be used on satellites and which will make it possible to obtain information about the icecap, the state of the marine surface and areas of precipitation, which are of great practical importance for shipping.

In the summer and autumn of 1974, scientists from the two countries took an active part in an international experiment to study the atmospheric processes in the Atlantic Ocean area. It was called Tropex-74 and the information obtained by means of satellites and ships provided meteorological science with fresh important data.

For a number of years, U.S.S.R. and U.S. specialists have been working together in studying the natural environment from outer space over the territory of their countries and some parts of the World Ocean.

The Soviet-U.S. working group on space biology and medicine meets regularly to consider the results of medico-biological research carried out during manned flights, and works out recommendations on the methods to be used in inspecting astronauts before and after flights. By now, the Soviet-U.S. three-volume edition, *Foundations of Space Biology and Medicine*, mentioned above, has been published in Russian and English.<sup>35</sup>

*b. Preparation for ASTP.*—The "central effort" in Soviet-American space cooperation, as Vereshchetin wrote, was the joint Apollo-Soyuz mission. "In complexity and scale," he noted, "this is, undoubtedly, among the major projects ever carried out in bilateral cooperation between states in the exploration of space."<sup>36</sup>

To prepare for this joint project required, in Vereshchetin's words, "the solution of a number of intricate technical, organisational and other problems." ASTP required "close interaction and mutual understanding of designers, astronauts, command and measuring devices, and flight control centres." According to Vereshchetin, "a mere enumeration of the agreed technical documents would run to over 100 items."<sup>37</sup>

The achievement of technical compatibility required a cooperative spirit on both sides. The modification of spacecraft atmospheres to avoid aeroembolism represented, according to James J. Haggerty

<sup>35</sup> Vereshchetin, op. cit., p. 34-35.

<sup>36</sup> Ibid., p. 35.

<sup>37</sup> Ibid., p. 35-36.

writing in *Aerospace* magazine, "something of a milestone in U.S.-Soviet space relationships." "Soviet willingness to undertake this very costly narrowing of the pressure gap," he said, "convinced the American team early in the program that the U.S.S.R. was really serious about the cooperative venture."<sup>38</sup>

Language communication was a major problem. However, after a year of training and practice, the crewmen developed a competence roughly equivalent to about four years of college language instruction. Provisions were also made for bilingual labelling of gauges and instruments on the spacecraft, and interpreters were ready at control centers in both Houston and Moscow to relay communications and assist in translating difficult technical terms.<sup>39</sup>

Interaction among crews was particularly close. From the beginning of the training program the cosmo-astronauts "hit it off", as one observer wrote, developing what a NASA official called, "the camaraderie of World War I fighter pilots." After becoming acquainted on brief visits, they went through lengthy joint training sessions in the Soviet Union and the United States. "They have run, swam, fished and played tennis together, had snowball fights in Moscow, hunted antelopes in Wyoming and toasted away countless convivial evenings in one another's homes," wrote Don A. Schanche, a writer on space matters. As Cosmonaut Leonov said, "We must trust each other with our lives, therefore we must be like a family."<sup>40</sup>

Soviet-American crew members and other staffers exchanged four visits to each other's countries. Tours and training sessions were arranged at Cape Canaveral, the Lyndon B. Johnson Space Center in Houston, at Star City outside Moscow, and the huge Baykonur Cosmodrome in Kazakhstan. Though hesitating at first to permit Astronaut Thomas P. Stafford to see the Soviet spacecraft, the Soviets finally relented to the insistence of Stafford who remarked, "I never fly on a spacecraft I haven't been in on the ground," but more clearly in conformance to the principle contained in the April 6, 1972 Summary of Results. NASA project officials had uniformly insisted and gained agreement that American crews had to be familiar with the actual Soyuz that would participate in the mission.

Throughout the training period a new spirit of cooperation seemed to emerge. As Arnold W. Frutkin, NASA Assistant Administrator for International Affairs, told the Senate Aeronautical and Space Sciences Committee on March 22, 1973: "Soviet interest in the success of the Apollo-Soyuz Test Project is clearly equal to our own, and veteran observers of the Soviet scene tell us that the close collaboration between members of the joint working groups is unmatched in their experience."<sup>42</sup>

The Soviets responded in the same cooperative spirit in commenting on relationships with the American space community. Upon returning from a visit to the United States with Cosmonaut Konstantin Feoktistov in 1969, where they examined many U.S. space facilities and met with President Nixon and leading NASA officials, Cosmonaut Georgiy

<sup>38</sup> Haggerty, James J. *Apollo-Soyuz: End of an Era—Start of an Era*. *Aerospace*, June 1975:3, quoted in Hamer, op. cit., p. 488.

<sup>39</sup> *Ibid.*, p. 488-489.

<sup>40</sup> *Ibid.*, p. 489.

<sup>41</sup> *Ibid.*, and information provided by NASA.

<sup>42</sup> Quoted in, Moss, Senator Frank E. *Let the Diplomats Learn from the Engineers*. *Astronautics & Aeronautics*, v. 11, Sept. 1973: 17.



Beregovoy observed: "The American scientists and astronauts gave us a warm welcome, we were able to see a great many things and to hold important conversations about the future development of joint projects in the field of space research and exploration. By the time we left we were full of confidence in the success of the joint projects that had begun."<sup>43</sup>

Cosmonaut Leonov expressed the same confidence as he viewed the entire project as it evolved. "The principal achievements of the joint drills," Leonov said, in a press conference, "is that we got to know one another, our respect for one another grew and became stronger, and a high level of confidence came about which is indispensable to carrying out the EPAS [that is, ASTP] program. After all, we intend to meet and to be ready to immediately come to one another's aid if necessary."<sup>44</sup>

On the eve of the joint spaceflight Leonov pronounced what might be the quintessential Soviet expression of space cooperation when he said:

In practical terms we are now the representatives of the entire globe. Regardless of the difference in social systems, in spite of the contradictions there have been and still are, we have found the necessary point where we come together, we have understood one another, we have taken one another's hand on Earth, and we are ready to do that in space.<sup>45</sup>

## 2. ASTP: Reaffirmation of Established Soviet Policy

As Chapter One on Soviet uses of space for political purposes pointed out, the Soviets perceived ASTP as visual proof of the value of detente. According to Soviet reasoning, detente eased East-West tensions and effected a change in relationships from confrontation to negotiation; this in turn created an environment for cooperation; ASTP was the result. For the Soviets, therefore, ASTP was dramatic justification for the established policy line of peaceful coexistence; it reinforced belief in space cooperation as a viable national and international policy; it opened new possibilities for joint projects with the United States beyond ASTP. Accordingly, one of the principal themes in the Soviet response to ASTP was emphasis on the positive value of space cooperation.

For Brezhnev, ASTP constituted "a practical contribution to the cause of further development of mutually beneficial cooperation between the U.S.S.R. and the U.S.A. in the interests of peoples of both countries, in the interests of peace on earth."<sup>46</sup>

This "remarkable space experiment," said Boris Ponomarev, one of the Soviet Union's leading political figures, "has shown not only the possibility, but also the necessity of mutually useful cooperation of our countries in progressive fields of science and technology."<sup>47</sup>

For Academician Petrov, ASTP was a "major contribution" to the development of Soviet-American cooperation and a "major step in the development of international cooperation in the study and utilization of outer space for peaceful purposes."<sup>48</sup> Cosmonaut Shatalov termed ASTP "above all, a most important project in the development and

<sup>43</sup> Quoted in, Ryabchikov, Ye. I. *Space Future: a Writer's Notes*. USA: Economics, Politics, Ideology (Moscow), no. 7, July 1975, translated in JPRS: 65458, Aug. 14, 1975: 14.

<sup>44</sup> Quoted in, *Ibid.*, p. 15.

<sup>45</sup> Quoted in, *Ibid.*, p. 15.

<sup>46</sup> Brezhnev Congratulations to Ford. Moscow, Tass, July 24, 1975.

<sup>47</sup> Moscow, Tass, Aug. 11, 1975.

<sup>48</sup> Petrov, *Outer Space at the Service of the People*, p. 101.



expansion of the possibilities for international cooperation in science in general, and in the study of outer space, in particular.”<sup>49</sup>

ASTP was also perceived as the beginning of even larger cooperative undertakings in the future with the United States and other nations. “Being an important milestone in cooperation between the U.S.S.R. and the U.S.A. in the exploration and use of outer space for peaceful purposes,” Brezhnev wrote to President Ford, “the accomplished joint flight lays a foundation for the possible subsequent Soviet-U.S. projects in this field.”<sup>50</sup> According to Vereshchetin, the cooperative efforts of Soviet-American space specialists in ASTP was “a major international scientific and technical accomplishment.” Its place in the progress of space exploration “can hardly be overrated.” Still, it was “only a stage”—a beginning—in realizing Soviet-American space cooperation. Study of possibilities for “further major bilateral projects in the future,” Vereshchetin observed, have already been under way.<sup>51</sup> The authoritative Soviet journal, *Pravda* emphasized the same point editorially; namely, that ASTP represented “a significant step” in developing Soviet-American cooperation adding that the joint flight opened “new prospects for joint work by various countries in the peaceful mastery of the boundless expanses of the universe.”<sup>52</sup>

In brief, therefore, judging from the chorus of assenting Soviet views (none other would be tolerated), ASTP amounted to a reaffirmation of the principle of space cooperation, particularly with the United States, and encouraged the expectation of expanding on this principle.

### 3. ASTP: From the American Perspective

a. *Levels of response.*—From the American perspective the response to ASTP appeared in general to be tri-level: enthusiasm at the official level, apparent approval among the people, with some criticism and skepticism expressed in certain sectors of opinion. Viewed in the context of detente, ASTP was generally praised as a prime example of Soviet-American space cooperation and as an effective instrument for easing East-West tensions. Critics alleged unequal benefits to the disadvantage of the United States, a point particularly sensitive to the Russians. The transcending theme in the American response appeared to be the value of space cooperation.

b. *At the official level.*—At the official American level the response to ASTP was enthusiastic. In a prelaunch message to the crews President Ford hailed ASTP as a “wonderful expression of cooperation.” “You will be blazing a new trail of international space cooperation,” he added. The joint flight, he went on, “has already demonstrated . . . that the United States and the Soviet Union can cooperate in such an important endeavor.” The President expressed confidence that the crews’ “efforts and example will lead to further cooperation between our two countries.”<sup>53</sup>

On the occasion of a meeting on Oct. 13, 1975 with the Soviet-American ASTP crew, the President said again that the flight was “a great demonstration” because “it shows that there can be and there

<sup>49</sup> Quoted in, *Ibid.*

<sup>50</sup> Moscow, Tass, July 24, 1975.

<sup>51</sup> Vereshchetin, *op. cit.*, p. 37-38.

<sup>52</sup> Cooperation in Space. (Editorial). *Pravda*, July 23, 1975: 1, translated in *Current Digest of the Soviet Press*, v. 27, no. 30, August 20, 1975: 8.

<sup>53</sup> *New York Times*, July 16, 1975: 18.

is cooperation between the United States and the Soviet Union in the area of space." More significant than prior discussions on space cooperation and "the handshake in space," he continued, was "the activity of literally thousands and thousands of scientists, technicians, and others in putting together over a 3-year period a successful effort which shows what can be done between the people and the governments of two great nations." The President expressed the hope that this joint effort "will be but a forerunner of what we can do on an expanded basis, not only in space and science but in many other areas."<sup>54</sup>

Secretary of State Henry Kissinger emphasized the same thought when he told the crewmen, "I'd like to believe that what you gentlemen did in space will be transferred to what our political leaders do on Earth."<sup>55</sup>

Representatives from the American space community were similarly effusive in their response to ASTP. Reacting to increased public criticism over the value of the project, Chester M. Lee, ASTP program director for NASA, defended the program in a speech before the National Space Club of Washington during the fall of 1974. Inferred in his defense was the value of space cooperation, particularly in perfecting a system for any future rescue or joint space operations. In his concluding remarks, Lee tied in the political significance of ASTP with the value of space cooperation when he said: "ASTP has also provided a window—however small—into a part of the Soviet society. With this window and resulting knowledge and understanding there is some contribution to the detente."<sup>56</sup>

Expectations of long-term space cooperation with the Soviet Union were evident in the remarks by Dr. James C. Fletcher, NASA's Administrator, on the occasion of Apollo's launching on July 15, 1975. "You're making history today," Fletcher told the astronauts. "This is the first step on a long mission and a first step on a long program with the Soviet Union."<sup>57</sup>

Glynn S. Lunney, NASA's technical director of ASTP, was convinced that the mutual trust and experience derived from the joint mission could be the foundation for much more ambitious and scientifically productive joint missions in the 1980s. Such cooperation, he believed, could lead to some sharing of cost of space exploration and avoiding some duplication of effort.<sup>58</sup>

<sup>54</sup> Meeting with Apollo-Soyuz Astronauts and Cosmonauts. Presidential Documents: Gerald R. Ford, 1975, v. 11, no. 42, October 20, 1975, p. 1167.

<sup>55</sup> In Flower-and-Autograph Orbit. New Times, no. 44, Oct. 1975:21.

U.S. Ambassador to the Soviet Union Walter Stoessel placed great stress on the necessity of cooperation in his prelaunch remarks to Yuriy Kornilov, a Tass political news analyst. According to the Tass account, Stoessel said that ASTP was symbolic of the positive and concrete American-Soviet cooperation that could be carried out between them as well as by other nations throughout the world. He underlined the concept that working together in space captures mankind's imagination because it requires careful and detailed preparation along with developing mutual confidence. Furthermore, Stoessel believed that such a bold exercise as ASTP should strengthen the two countries resolve to work together in many other fields, from arms control to broader exchanges of information, which will lead to better understanding of each other and the construction of a better world for all. Stoessel believed that ASTP was coming at a significant point in joint cooperation in the field of science and technology. Both countries were working together in areas like the development of energy resources, improvement of the environment, the struggle against cancer and heart disease. Such cooperation was of great potential benefit to both countries and to all people. Stoessel concluded that ASTP should serve as a beacon to highlight the need to work for the common good wherever possible. (Moscow, Tass, July 14, 1975.)

<sup>56</sup> NASA's Defense of ASTP. (Editorial). Aviation Week and Space Technology, v. 101, Nov. 11, 1974, p. 9.

<sup>57</sup> New York Times, July 16, 1975: 1 and 18.

<sup>58</sup> Willford, John Noble. Joint Flight Assessed. New York Times, July 24, 1975: 58.



Dr. Low expressed the theme of salvation through cooperation in a speech at the aerospace writers' convention in the spring of 1975. He explained:

Space exploration offers a peaceful outlet for man's aggressive instincts. Nations that work together to reach the stars are that much less likely to descend together into the depths of war and desolation. Space holds the ultimate solution to many of the pressing needs of humanity, perhaps even the very survival of our species.<sup>59</sup>

Indicative of the value both nations placed on ASTP as a significant aspect of space cooperation were the frequent approving references in Soviet writings to favorable remarks by American space officials on ASTP. In his appraisal of Soviet space efforts appearing in *Kommunist* in July 1975, Academician Petrov quoted Dr. Fletcher on the occasion of signing the joint flight agreement: "Unquestionably, the joint flight will be of great emotional, psychological, and political importance to the entire world." In another quotation, Chester Lee emphasized that the joint flight would be "a major contribution to the policy of detente." Other quotations from Lee and Senator Frank E. Moss (D-Utah), Chairman of the Senate Aeronautical and Space Sciences Committee, passed favorable judgments on the significance of ASTP.<sup>60</sup> In a pre-launch interview Cosmonaut Shatalov, chief of cosmonaut training, remarked, "We are fully aware of the exceptional importance of the fact that two of the leading space powers have combined efforts in mastering outer space." And he then recalled the statement by Dr. Fletcher in which he compared ASTP with climbing a mountain peak, from which opened new horizons for Soviet-American cooperation.<sup>61</sup>

c. *In the press.*—A major theme in editorial comment by the *New York Times* on ASTP was the need for space cooperation. One of the unplanned coincidences about the scheduled launchings, the *New York Times* said on July 15, was that it would take place one day before the 30th anniversary of the first nuclear explosion on Earth. "The coincidence underlines the extreme choices before humanity," the *Times* said: "nuclear devastation or intimate cooperation of the kind required to make the present American-Soviet space mission possible." To the *Times* editors, it was a "significant and hopeful sign" that man's exploration of space, which had begun in an atmosphere of "fierce cold war rhetoric and competition," has now culminated for the moment "in the effort to achieve the friendly meeting in space planned for later this week." "The best reason to welcome the temporary space partnership of the days immediately ahead," the *Times* continued, "is the hope that it will lead to broader and more permanent cooperation, and not only in space." Because of the immensity of the immediate solar system, let alone the broader universe, the task of full space exploration "will require generations of effort by the united resources of mankind."<sup>62</sup>

Another editorial on the following day in the *New York Times* concluded with this sober expression of hope for greater space cooperation:

The Soyuz-Apollo mission is a major step forward toward greater cooperation between the two great countries involved. But it is a limited island of intimacy in

<sup>59</sup> Salisbury, David F. Americans, Russians Meet in Space. *Christian Science Monitor*, July 11, 1975: 16-17.

<sup>60</sup> Petrov, *Outer Space at the Service of the People*, p. 100-111.

<sup>61</sup> Moscow, Tass, July 2, 1975.

<sup>62</sup> Meeting in Space. (Editorial). *New York Times*, July 15, 1975:32.



the great, troubled ocean of Soviet-American relations where there are also areas of deep political cleavage, notably now in Portugal and the Middle East. The danger is that the Soyuz-Apollo mission might become a sort of Potemkin village in space, an event which could arouse unrealistic expectations here. By all means let there be progress in detente; but the crucial tests, at least in the near future, will take place here on Earth.<sup>63</sup>

In a concluding editorial on ASTP of July 20, the *Times* made a vigorous plea for international space cooperation. In a wholly rational world ASTP would mark the beginning of a wide-ranging program of joint exploration of space and for the joint exploitation of resources in space for the needs of humanity. All nations could participate. The possible projects were numerous and could easily provide an agenda for cooperative work stretching at least to the end of the 20th Century. Gains were to be realized through intimate, joint collaboration in space. "The past several days have seen a remarkable flowering of good feeling between Soviet and American citizens," the *Times* observed. "More ambitious space projects embracing citizens of more than two nations," it suggested, "might have similar salutary effects here below." Though acknowledging the "deep suspicions and many areas of rivalry" in Soviet-American relations, the *Times* concluded on this optimistic note: "Nevertheless, for anyone who remembers the grim atmosphere of 1957-1958, the Apollo-Soyuz mission must seem a political as well as a scientific miracle. Perhaps from the perspective of the year 2000, it will seem equally incredible that as late as 1975 there could still be doubts about the prospects for large-scale international cooperation in space."<sup>64</sup>

In a similar way, the *Christian Science Monitor* reiterated editorially the virtues of space cooperation, pointing to ASTP as positive proof of its value, yet directing attention to the harder realities of Soviet-American political rivalry. ASTP may not have yielded much by way of significant scientific results, but, according to the *Monitor*, "it does demonstrate that the world's rival superpowers can collaborate in some fields. If successful, it should help warm the air of detente." In citing the pros and cons of the mission, the editors noted that ASTP was "good for America, too." The rationale of detente is that in the nuclear age a policy of cooperation and accommodation better promotes peace than one of hostile confrontation. "It is wiser to engage the Russians constructively on the international scene," the *Monitor* said, "than to fight them." While the scientific importance of ASTP ought not to be overestimated, the *Monitor* cautioned, still "as a symbol of what can be accomplished when men work together, it holds out great potential—both in space and on Earth."<sup>65</sup>

*d. Skeptical and dissenting opinions.*—By no means was there solid support for ASTP in the United States. As the Lee speech before the National Space Club suggests, ASTP was not without its skeptics and critics. This speech attempted to respond to questions raised as to purposes, scientific and technological value, costs, risk-factor, technology transfer, and political value.<sup>66</sup> Nor was the press solid in its support. The *New York Daily News* of Dec. 14, 1974 had a lead article on ASTP entitled, "Let us Put an End to All This." The central

<sup>63</sup> Detente in Space. (Editorial). *New York Times*, July 16, 1975:37.

<sup>64</sup> Beyond Soyuz-Apollo. (Editorial). *New York Times*, July 20, 1975:E14.

<sup>65</sup> etente in Space. (Editorial). *Christian Science Monitor*, July 14, 1975:28.

<sup>66</sup> Lee, op. cit. p. 8.

theme of skepticism and dissent was that the United States had much to lose and little to gain in this cooperative effort.

"From the Soviet standpoint, the goals were obvious," wrote Robert Hotz, editor-in-chief of *Aviation Week & Space Technology*. He summed up these goals as follows:

First, to tap into the mainstream of U.S. space technology, which had spurred a generation ahead with Apollo. Second, to blur the international image of U.S. superiority with at least the appearance of parity by flying a joint manned mission. Third, to develop the technical base for an international space rescue capability. This last objective was shared by the U.S. But other U.S. goals sought from this venture remain obscure and may be nonexistent beyond the political parameters.<sup>67</sup>

Similarly, Michael S. Kelly argued in *National Review* that the Soyuz was "little more than a man-rated unmanned satellite," lacking an inertial guidance system, an onboard computer, sufficient manual control, adequate engine burn timing, backup life support systems, re-entry precision and stabilization methods. Furthermore, Kelly charged that the rescue capability of the international docking system was "purely academic," since the Apollo would never fly again. The Space Shuttle, the next American space vehicle, would be capable of rescuing a Soyuz by hoisting it into its huge bay and flying back to Earth; Soyuz would be "useless" in any attempt to rescue a disabled Shuttle. "We get all this—" Kelly wrote, "and pay for it, too."<sup>68</sup>

In the Senate, Senator William Proxmire (D-Wisc.) raised questions for more than a year about the safety of the Apollo astronauts spending time inside the Soyuz spacecraft and the limited rescue capability of the Soyuz in the event something went wrong with the Apollo. After a meeting with Dr. Carl Duckett, Deputy Director for Science and Technology in the Central Intelligence Agency, Senator Proxmire said: "I'm very concerned about the risk to our astronauts in space. The danger is significant." However, the Senator said that the odds were that ASTP would be successful.<sup>69</sup>

Among the sharpest critics of ASTP and space cooperation with the Soviets in general was Foy D. Kohler, former U.S. Ambassador to the Soviet Union. In a lengthy foreword to a book prepared by the research staff of his Center for Advanced International Studies at the University of Miami, Kohler examined the concept of Soviet-American space cooperation within the larger political-ideological context of the Soviet reality; he made a special plea for realism and skepticism. (The directed purpose of the book seemed apparent by the design on the cover that depicted Soyuz linked with Apollo in a globe with the names appearing on a larger outer circle.) Kohler voiced a "strong note of caution" in exaggerating "either the content or the likely consequences of the cooperative arrangements that have been effected and are now going forward so satisfactorily."<sup>70</sup> Only in ASTP was there any joining of human and technological resources in a common endeavor, he argued. There could be "no guarantee that success in presently ongoing activities will lead to the institution of new and

<sup>67</sup> The Apollo-Soyuz Experiment. *Aviation Week & Space Technology*, May 5, 1975:11, quoted in, Hamer, op. cit., p. 492.

<sup>68</sup> The Apollo-Soyuz Test Project. *National Review*, Oct. 25, 1975:1232-1234, quoted in Hamer, op. cit., p. 492.

<sup>69</sup> *Washington Post*, June 5, 1975, quoted in, Hamer, op. cit., p. 492-493.

<sup>70</sup> Harvey, Dodd L. and Linda C. Ciccoritti. *U.S.-Soviet Cooperation in Space*. With a foreword by Ambassador Foy D. Kohler. Coral Gables, Florida, Center for Advanced International Studies, University of Miami, 1974, p. xv.



more significant cooperative enterprises, as so many have speculated or surmised.”<sup>71</sup>

Kohler downgraded the views of those in the United States who believed that through “achieving massive cooperative enterprises with the U.S.S.R. we will be able to effect basic changes in Soviet society and Soviet attitudes and that great efforts along this line will be worth undertaking, even if almost wholly at the expense of the U.S.” Such ideas as “bridge-building”, “convergence”, and “de-ideologization”, he said, were “pure anathema” to the Soviet authorities. In contrast, they were “most intent” upon safeguarding against internal relaxation as a result of increased exchanges and contacts with the United States.<sup>72</sup>

Kohler also attempted to disabuse Americans and Westerners of “a favored illusion” that “if our scientists can but get together with Soviet scientists they can rise above politics and get things done that otherwise could not be done.” Kohler proceeded to explain the high degree of control that the ruling Soviet authorities maintain over its scientists and concluded that “the hard fact is that they cannot have their way unless the ruling oligarchy agrees.”<sup>73</sup>

A central point in the Kohler argument was that “despite our hopes and expectations, the Soviet leadership has repeatedly and consistently refused to approach any relationship in the space area outside the context of the overall relationship between the two countries.”<sup>74</sup> Thus, space agreements “do not and cannot stand for long on their own.” They were sub-elements of larger Soviet policy which currently is defined by the term “peaceful coexistence” or, as the United States prefers, *detente*. Kohler predicted: “Thus, the critical factor that will determine actual performance on the Soviet side in the space cooperation field, and even more whether the new cooperative activities, even if successful, will prove one-shot affairs or a point of departure for larger efforts, is what happens to ‘*detente*’ as the Soviets themselves interpret *detente*.”<sup>75</sup>

After explaining the Soviet interpretation of *detente* (which contrasts sharply with that of the Americans) and the economic purposes for adopting this policy, Kohler argued that Soviet objectives underlying increased cooperation in space “are primarily the result of a Soviet calculation that such concentration will provide a good backdrop for and stepping stones toward wider exchanges in the technological area, exchanges that will contribute importantly to meeting larger Soviet needs and expectations.” The Soviets stood to gain directly from ASTP, he went on, since the project was concentrated in areas where they had special difficulties. However, all indications pointed in the direction that the Soviets were thinking in “much more far-reaching terms of broad-gauge U.S. participation in the further development of the U.S.S.R. economy and its general technological advancement, with space cooperation only a part of the overall process.”<sup>76</sup>

<sup>71</sup> *Ibid.*

<sup>72</sup> *Ibid.*, p. xvii.

<sup>73</sup> *Ibid.*, p. xix-xx.

<sup>74</sup> *Ibid.*, p. xxi.

<sup>75</sup> *Ibid.*, p. xxv.

<sup>76</sup> *Ibid.*, p. xxxii.



Kohler concluded that it was difficult to perceive any direct or "in-kind" benefits the United States might gain through "even highly successful performance" under the space agreements. In actual operations, he argued, the main focus of joint projects was in areas where the United States already had firm technological leadership at very great costs; cooperative projects would require further effort and expense at a time when Americans were beginning to concentrate on new directions in space exploration.<sup>77</sup>

When this book was published in October 1974, Kohler's remarks created what one observer termed "a minor furor" in Moscow and at NASA headquarters. The Soviet press accused Kohler of attempting to sabotage the joint mission. Although NASA had financially supported the preparation of the book, it later disassociated itself from it. In the words of Arnold Frutkin, NASA's authority on space cooperation: "Their doctrinaire attitude toward the Soviets is one thing, but you can't interpret a specific activity wholly on the grounds of a 25-year-old view of doctrine." Dr. Low considered the book "a bad piece of work." On the other hand, some former NASA officials like Dr. Homer Newell, former Associate Administrator of NASA, tended to take a more explicit view. Newell said he saw no evidence for a fundamental change in Soviet policy, only that the Russians have decided that they will profit from ASTP. Neither Low nor Frutkin argued the evidence yet went beyond this.<sup>78</sup>

In a retrospective look at Soviet-American space cooperation, Vereshchetin made a critical appraisal of the book and Kohler's foreword. "The timing of this publication was not by any means accidental," wrote Vereshchetin. Preparations for ASTP were gaining momentum, and that time "was chosen to present to the public, in the guise of a serious scientific study, a work, which in effect, denigrates all the work that has been done together." He summed up Kohler's main arguments and then dismissed them, particularly the charge that the Soviet Union wanted to obtain access to the U.S. docking device. Vereshchetin termed Kohler's assertions "quite groundless," citing NASA's Dr. Glynn Lunney to buttress his argument.<sup>79</sup>

Thus, from the American perspective ASTP and space cooperation with the Soviet Union in general had a somewhat mixed reception. At the official level they were perceived as an important instrumentality for achieving détente. Selected press comments, stimulated by ASTP, tended to see space cooperation in the same favorable light, though realistically acknowledging the existence of formidable barriers. Still some observers cast a skeptical, even a critical eye on space cooperation, especially ASTP, perceiving only political and technological disadvantages for the United States.

<sup>77</sup> *Ibid.*, p. xxxii-xxxiii.

<sup>78</sup> *Christian Science Monitor*, July 11, 1975:16, and further information from NASA.

<sup>79</sup> Vereshchetin, *op. cit.*, p. 37. According to Christopher C. Kraft, Director of the Johnson Space Center in Houston, Texas, "very, very little technology" was transferred to the Soviet Union. Most of the design specifications were already well known to the Russians. The docking module, the only new piece of equipment, was built from off-the-shelf hardware. After agreeing on compatible designs, each country went its own way in developing and building the docking mechanisms. "If they have learned anything from us," Kraft said, "it's in the world of management." (*New York Times*, July 24, 1975:58.) Academician Petrov discounted portrayals in the American press of the Soviet Union receiving more technological benefits than the U.S. Solutions to mutual problems such as docking were worked out independently by each side. Petrov said, and involved no transfer of technology from one country to the other. (Pond, Elizabeth. What the Soviets Say. *Christian Science Monitor*, July 11, 1975:17.)

### III. OTHER AREAS OF SOVIET SPACE COOPERATION

#### A. COOPERATION WITH FRANCE

##### 1. *History of Cooperation*

Along with the United States, France has occupied the leading position among non-Communist countries in bilateral space cooperation with the Soviet Union, over the past decade. French-Soviet space cooperation was initiated for both political and scientific reasons as part of a broader arrangement for bilateral cooperation during President Charles de Gaulle's visit to the Soviet Union in 1966. A bilateral agreement on "Cooperation in the Study and Exploration of Outer Space for Peaceful Purposes" was signed during the visit. A "Standing Commission" on bilateral cooperation was set up to hold regular annual meetings for purposes of implementing the agreement.

Since 1966, France and the Soviet Union have undertaken a number of joint space ventures involving Soviet rockets carrying French and Soviet equipment. Joint experiments have been undertaken in meteorology, geophysics, magnetism, and communications.<sup>80</sup>

##### 2. *Highlights of Cooperation, 1971-1975*

Under the successive administrations of Georges Pompidou and Valéry Giscard d'Estaing, emphasis on space cooperation in the framework of French-Soviet relations was continued. In 1970, President Pompidou became only the second Westerner (after President de Gaulle) to be invited to the "Baykonur" space center during his visit to the Soviet Union.<sup>81</sup>

In October 1971, Soviet Party leader Leonid Brezhnev visited France and signed a statement of "principles of long-term cooperation" with France, which encompassed space. The mutual commitment to cooperation was reiterated at successive summit meetings. These were held in January 1973 (at Minsk), June 1973 (Rambouillet), March 1974 (Pitsunda, on the Black Sea), December 1974 (Rambouillet) and October 1975 (Moscow).

A major joint French-Soviet experiment was conducted in November 1971, when the Soviet Luna 17 carried a French laser reflector to the surface of the Moon. The reflector is said to have allowed extremely accurate measurements of the distance from the Earth to the Moon by means of radar. In January 1973, the Lunokhod 2 was equipped with a French laser reflector. Mars 3 carried a French instrument to measure solar radiation. In the summer of 1973 the Prognoz 2 station carried instruments for two joint experiments. The joint Calypso project attempted to measure low-energy particles in the outer layers of the magnetosphere. The Sneg project was conceived to study neutrons and gamma-rays from the Sun.<sup>82</sup>

On April 4, 1972, the Soviet Union launched a rocket into orbit carrying a French research satellite. The French satellite, designated SRÉT-1, was placed in a high apogee orbit along with a Molniya 1 communications satellite. The mission of the French satellite was to test diverse solar batteries under outer space conditions.<sup>83</sup>

<sup>80</sup> For a review of French-Soviet space cooperation in the 1966-1970 period, see U.S. Congress. Senate Space Committee, *Soviet Space Programs, 1966-1970*.

<sup>81</sup> Crome, Angela. *East and West in Space*. *New Scientist*, v. 48, Oct. 15, 1970: 120.

<sup>82</sup> Sedov, L. *International Cooperation in Space Exploration*. *International Affairs*, no. 11, Nov. 1973: 19.

<sup>83</sup> *Facts and Figures*. *International Affairs (Moscow)*, no. 11, Nov. 1972: 96-97.



The Soviet Union and France simultaneously launched rockets to study the characteristics of the atmosphere between altitudes of 100 and 230 kilometers, including its composition, electronic density and temperature. Another joint experiment, the Arcade project, was launched to observe the northern lights, as well as atmospheric conditions. The Oreol satellite was used in conjunction with ground observatories.<sup>84</sup>

The Soviet Mars 6 and 7 space stations carried French and Soviet instruments designed to study short wave solar radiation. The Soviet-French Arax project was undertaken in 1975 to study Venus' atmosphere and high energy particles from the Sun and deep space, as well as to investigate the processes taking place in the polar region of the ionosphere.

The Permanent Mixed Soviet-French Commission held its 10th session in July 1975. At the meeting the delegates adopted a "program of long-term cooperation in the field of investigation and the use of outer space for peaceful purposes" which called for continuing and expanding the scope of bilateral space research.<sup>85</sup>

Within the framework of this program, the 12th annual French-Soviet conference of scientists on space exploration met in France in September 1975 to discuss further specific cooperative space projects. The delegates stressed the significance of the previous Araks (Arax) experiment and hailed the Soviet launching of the French research satellite MAS-2.<sup>86</sup>

### *3. Significance of French-Soviet Cooperation*

Bilateral cooperation in space would appear to hold scientific benefits for both France and the Soviet Union. The Soviet desire for Western technology, particularly in the area of sophisticated electronic equipment, has been demonstrated. France, as an advanced Western nation, is in a position to provide such technology. On the other side, Soviet experience with rockets can be used to advantage by French scientists.

French-Soviet space cooperation within the broader cooperative framework appears to also carry significant political benefits to both countries. Space cooperation can be seen as a significant element strengthening the rapprochement initiated between France and the Soviet Union under President de Gaulle. The improvement of relations in that period was the result of a mutuality of interests: France wanted to become more independent of the United States and the Atlantic alliance. Closer ties with the Soviet Union were used as a counterweight to the existing relationship between France and the United States. France, at the same time, partially divorced itself from NATO. De Gaulle's vision of an independent France leading a united independent Europe may not have been shared by Soviet leaders. However, the weakening of the Western alliance and NATO that would presumably result from a greater assertion of French independence was viewed positively by the Soviet Union.

In recent years, French foreign policy appears to have undergone some changes. French cooperation within the Western alliance seems

<sup>84</sup> Sedov, op. cit., p. 20.

<sup>85</sup> Annual Soviet-French Space Conference opens. (Moscow) TASS, in English, September 23, 1975.

<sup>86</sup> TASS (Moscow) in English, September 30, 1975.



to have grown under President Giscard d'Estaing. At the same time, press accounts of the October 1975 French-Soviet summit meeting in Moscow indicated that there may be a lessening of momentum in relations between the two countries, although this interpretation was not confirmed.<sup>87</sup>

The commitment to expanded cooperation, however, was reasserted by both sides during the 1975 summit. The signing of a declaration of friendship and cooperation climaxed the meeting. The declaration expressed the determination of France and the Soviet Union to "follow the course of accord and cooperation."<sup>88</sup> The same determination was expressed by Leonid Brezhnev during his visit to France of December 1974. In a speech, he said:

We have reason to give a positive appraisal to the development of Soviet-French relations. Joint efforts have enabled us to lay a reliable foundation. This applies to the political sphere, to economics, and to our scientific, technical and cultural ties. We have come here filled with a desire to give through joint efforts, a new impetus to Soviet-French cooperation . . . The task is to fill out our agreements in principle with more and more specific deeds.<sup>89</sup>

## B. COOPERATION WITH INDIA

### 1. *Background of Indian Space Program*

India is the third non-Communist country with which the Soviet Union conducts significant bilateral space cooperation. India claims a long tradition in space-related fields of research which is said to have provided the scientific base upon which the Indian space program was built. The scientific study of meteorology and variations of the Earth's atmosphere began in India more than a century ago when the British scientist J. Allen Broun directed the Trivandrum Observatory. Between 1852 and 1865 he is credited with having made fundamental contributions in the field of geomagnetism. The work of his observatory laid the foundation for future Indian progress in the fields of meteorology, ionospheric physics, geomagnetism, cosmic rays, astrophysics and solar physics.

The Indian space program can be traced to November 21, 1963 when the first rocket was launched into space from the Indian research center in Thumba. The rocket was a Nike-Apache supplied by NASA. In its nose-cone it carried a French payload.<sup>90</sup> Indian analysts credit the Soviet Union with assistance to the Indian space program from the beginning. However, they give primary credit for the launching of the program to NASA.

The Thumba Equatorial Rocket Launching Station on the west coast of India went into operation in 1963 with the help of the United States, France, and the Soviet Union. The station's main mission was to conduct experiments in the upper atmosphere in the equatorial zone. The research and development facility of the Indian Space Research Organization was constructed 16 miles south of the launching facility in Trivandrum. It became the Indian Space Science and Technology Center.

<sup>87</sup> Osnos, Peter. French Soviet Summit Ends with Questions. Washington Post, Oct. 18, 1975. A10.

<sup>88</sup> USSR and France to Work Together for Detente and Cooperation. Soviet News, no. 5806, Oct. 21, 1975: 365.

<sup>89</sup> Pravda, Dec. 6, 1974: 1-2.

<sup>90</sup> India's Space Research for Peaceful Use. India News, Apr. 13, 1973: 3.

In 1972, India established the Indian National Committee for Space Research (INCOSPAR) to promote and negotiate international cooperation in space.<sup>91</sup>

## 2. *The Development of Indian-Soviet Space Cooperation*

Cooperative relations between India and the Soviet Union began after Stalin's death in 1952 when in many countries Soviet support shifted from revolutionary movements to the non-Communist national government. Initially, India may have been just one of a number of Third World countries which the Soviet Union was attempting to woo. The place of India in Soviet foreign policy thinking appears to have changed with the widening of the Sino-Soviet rift in the early 1960's. Because of its size, population, and geographical location, India had the potential of providing a balance to Chinese power in Asia. At the same time, India's prestigious position among the world's non-aligned nations may have suggested to Soviet policymakers that a close relationship with India would facilitate Soviet inroads in other areas of the Third World.

The Sino-Indian war of 1962 may have given India the impetus to accord higher priority to its relations with the Soviet Union. Since 1962, Indian-Soviet relations have improved steadily. India now receives some 90 percent of its weapons and military aid from the Soviet Union. An increasing percentage of India's foreign trade is now with the Soviet Bloc.

Indian-Soviet ties were strengthened considerably in 1971 with the signing of a 20-year Treaty of Friendship and Cooperation. The Treaty was viewed by some Western analysts as tantamount to a formal alliance ending India's policy of non-alignment.<sup>92</sup>

Soviet sources trace space cooperation with India to 1962. The director of the first Indian satellite project, U. R. Rao, agrees that "from the very first days of our [space] work, we have been receiving enormous, I would say invaluable, assistance from our Soviet friends. Indeed, the basic principles and ideas in designing this kind of apparatus are, by and large, well known. But the practical aspect is quite another matter."<sup>93</sup> However, beyond such occasional references few specific details of bilateral space cooperation are given for the period prior to 1972. Soviet rockets are known to have been used in conducting sounding experiments from the Indian space launch site.<sup>94</sup>

## 3. *The Space Agreement of 1972*

A Soviet-Indian scientific cooperation agreement was signed in May 1972. It stipulated in part that a research satellite, developed and built in India, would be launched from the Soviet Union on a Soviet rocket. The agreement called for frequent meetings of Soviet and Indian scientists to complete the design of a full-scale model of the satellite. The Indian satellite director U. R. Rao described the aims of the project. He said:

The satellite, weighing 300 kilogrammes, will be put in an orbit 600 kilometers from the Earth. Its purpose is to carry out experiments in X-ray astronomy, solar neutrons, and gamma-quantums during different periods of activity of the Sun and

<sup>91</sup> Ibid., p. 3.

<sup>92</sup> Franda, Marcus F. India and the Soviets, 1972. American University Field Staff Reports, South Asia Series, v. 19, no. 5: 1-2.

<sup>93</sup> Kudin, Georgi. India's Space Program. New Times (Moscow), no. 11, Mar. 1974: 10-11.

<sup>94</sup> Shkroenko. U. Exploration of space and international cooperation. International Affairs (Moscow), no. 2, Feb. 1973: 33.

in ionospheric research. Along with scientific instruments made in India, the satellite will carry Soviet-made equipment which we do not yet manufacture: tape recorders for recording the results of the studies, chemical and solar batteries, systems for spin-stabilizing the satellite in orbit. The final results of scientific experiments will be made available to world science. Thus, the Soviet Union and India are proceeding from fruitful cooperation on Earth to joint peaceful research in space which will serve the interests not of our two countries alone, but of the whole world.<sup>95</sup>

Originally scheduled for 1974, the launching of the satellite occurred on April 19, 1975 from the "Volgograd" cosmodrome (Kapustin Yar) space center. According to news reports, the satellite was to be guided by the Soviet Union for the first three days after which control would be passed to the Indians. The successful launch made India the eleventh nation and only the second developing nation after China to place a satellite in orbit.<sup>96</sup>

Indian Prime Minister Indira Gandhi called the launching "an important event in India's efforts to harness the benefits of science." She thanked the Soviet Union for its role in the successful launch. Indian President Fakhruddin Ali Ahmed in a speech congratulated "our scientists and technologists who have been helping the Government and people in putting India on the map along with other developed countries."<sup>97</sup>

The successful launch was followed by the signing of a Soviet-Indian satellite protocol in November 1975, providing for future joint launches.

#### 4. *Significance of Cooperation*

Political considerations would seem to have weighed even more heavily in establishing space cooperation with India than with France. The scientific gains to the Soviet Union seem less apparent. However as a vehicle for solidifying political ties between the two countries, joint space ventures appear to have been particularly useful. Furthermore, space cooperation with India has provided the Soviet Union with the opportunity to demonstrate to other nations, especially those in the Third World, the rewards and benefits of close cooperation with the Soviets.

From the Indian perspective, a chief benefit seems to have been the prestige in the world community that accrues from being one of the few space powers. One Indian source has characterized Indian space achievements as "truly a symbol of India's onward and upward progress."<sup>98</sup> The achievements would most likely have been impossible to attain at this stage without foreign help.

### C. COOPERATION WITH OTHER NON-COMMUNIST COUNTRIES

Thus far, the Soviet Union has not extended bilateral cooperation with non-Communist countries to any significant degree beyond the joint undertakings with the United States, France, and India. Within the framework of an international program for observing artificial satellites for geodesical purposes, initially proposed and now coordinated by France, the Soviet Union operates joint tracking stations

<sup>95</sup> Kudin, *op. cit.*, p. 11.

<sup>96</sup> Weintraub, Bernard. First Indian Satellite Is Orbitied from Soviet on Russian Rocket. *The New York Times*, Apr. 20, 1975: 1.

<sup>97</sup> Weintraub, Bernard. Satellite Shot Hailed by Leaders of India. *New York Times*, Apr. 21, 1975: 49.

<sup>98</sup> India's Space Research for Peaceful Use, *op. cit.*, p. 3.



with Egypt and Somalia.<sup>99</sup> Furthermore, observation stations equipped with Soviet instruments are reportedly operating in Sudan, Chad, and Japan.<sup>100</sup>

The Soviet Union has reportedly shown some interest in the possibility of intensified scientific cooperation with West Germany that might include joint space projects. To date there have been no West German-Soviet space agreements.<sup>101</sup>

#### D. COOPERATION WITH COMMUNIST COUNTRIES

##### 1. *Background*

Over the years Soviet space cooperation has been most extensive with other countries in the Communist Bloc. Within the Soviet Academy of Sciences there was established a Council on International Cooperation in the Research and Utilization of Cosmic Space (Interkosmos). While this organization was assigned the task of "coordinating the work of all Soviet departments and organizations taking part in international cooperation in space and their interaction with similar organizations in other countries" its primary emphasis from the start has been on cooperation with Eastern European and other Communist countries.<sup>102</sup> The organization is headed by one of the Soviet space program's most distinguished figures and probably its best known spokesman, Academician Boris N. Petrov.

##### 2. *Interkosmos and Vertikal*

The Interkosmos program among socialist states, deriving its name from the Soviet organization which coordinates international cooperation, was established in 1967, on the basis of an agreement signed by the Soviet Union, Bulgaria, Hungary, the German Democratic Republic, Poland, Czechoslovakia, Romania, Mongolia, and Cuba. The program was given the task of "organically fusing the achievements of the scientific and technological revolution with the advantages of the socialist economy and social system."<sup>103</sup>

On the basis of the 1967 agreement two series of projects are being conducted. One is the Interkosmos series involving the launching of satellites for the purpose of conducting research in astrophysics, meteorology, biology and medicine. Through 1975, fourteen Interkosmos satellites were sent into space. The other series is called Vertikal. The rockets in this series are utilized for vertical soundings of the upper atmosphere.<sup>104</sup> Three Vertikals were launched through 1975.

The components and instruments on the satellites, as well as the experiments they carry out, are designed and manufactured by the various participating states. The individual states also participate in the ground operations.

##### 3. *Intersputnik*

The nine Communist countries participating in Interkosmos signed an agreement in November 1971 establishing Intersputnik, a satellite communications system designed as the Communist Bloc counterpart

<sup>99</sup> Sedov, *op. cit.*, p. 19.

<sup>100</sup> Shkolenko, *op. cit.*, p. 33.

<sup>101</sup> Soviets Seek Western Space Technology, *AviationWeek and Space Technology*, v. 98, Mar. 19, 1973: 47, 49.

<sup>102</sup> Petrov, Boris N. Soviet-American Cooperation in Space. USA: Economics, Politics, Ideology Moscow, no. 2, February 1973: 3.

<sup>103</sup> Shkolenko, *op. cit.*, p. 32.

<sup>104</sup> Facts and Figures, *op. cit.*, p. 96.

to Intelsat. Intersputnik was to provide the signatory states with international telephone-telegraph and photo-telegraph communication. Participating states were to exchange color and black-and-white television programs. The system was set up to include a space complex consisting of communications satellites and ground control stations, as well as ground stations which communicate via the satellites. Under the Intersputnik agreement, signatories were also to cooperate in theoretical and experimental research on communications satellites.<sup>105</sup>

While Intersputnik was established only among Socialist countries, other nations have since been invited to join the system, apparently in the hope of making it competitive with Intelsat.

#### 4. *Significance of Soviet Bloc Cooperation*

As in other Soviet cooperative arrangements, the program of space cooperation with the Communist Bloc may have been undertaken with a mixture of scientific and political motives. The Soviet Union could hope for a considerable scientific input, especially from the more technologically advanced Eastern European countries, such as the German Democratic Republic and Czechoslovakia. In turn the East European countries were able to gain access to space research with the help of Soviet rockets.

On the political side, the Soviet Union may have been responding in part to expressions of East European nationalism. Space cooperation could serve to give the appearance of greater equality and mutual benefit in relations between the Soviet Union and Eastern Europe. On the East European side, a major attraction may have been the element of national prestige that comes from membership in the "space club."

### E. COOPERATION IN THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS

#### 1. *Soviet Attitude toward Multinational Cooperation*

Public declarations by Soviet leaders and spokesmen indicated an eagerness on the Soviet part to supplement bilateral with multinational space cooperation. According to one Soviet space official:

A perfectly logical highlight of the very first years of the space age was the implementation of the idea of international cooperation in space, where it is in fact natural and necessary. Firstly, because the object of investigation is the Universe, i.e., everything beyond the limits of the Earth. If agreement on cooperation in the study of the Antarctic was reached with little difficulty, international cooperation where non-terrestrial objects are concerned is even more natural. Secondly, this cooperation is vital in view of the enormous scale of the space experiments, which are inconceivable without the joint coordinated work of large teams of scientists, engineers and workers in the most diverse fields. These experiments require huge structures, the most sophisticated apparatus and, consequently, large outlays . . . It is quite apparent that even a simple exchange of information to say nothing of concrete, planned, active cooperation in joint projects, will undoubtedly yield, (and is already yielding) a colossal effect in both science and practice.<sup>106</sup>

Another Soviet observer states:

The space era opens up many-sided opportunities for fruitful international cooperation among scientist and countries, especially in the fields of space science directly linked with the solution of economic and other problems of

<sup>105</sup> Sedov, op. cit., p. 20.

<sup>106</sup> Sedov, op. cit., p. 17.



mankind's development. The Soviet Union provides an example of this by participating in the international system of ties and activities in space exploration. The USSR is taking part in practically all aspects of the study and peaceful uses of outer space and is cooperating with dozens of states and the main international scientific organizations connected with space exploration.<sup>107</sup>

Despite the evident public Soviet enthusiasm for multilateral space cooperation, there appears to be some doubt over the extent to which the Soviet Union would open the doors of its own space program for the sake of effective cooperation. Because of the absence of a clear separation of the Soviet military and civilian space programs, there seem to be narrow limits to possible cooperation. In the course of an international space conference held in the Soviet Union in 1973, one Soviet participant is said to have voiced the problem bluntly. He said: "You know that our civilian and military space programs are not separate. We are very limited in what we can discuss."<sup>108</sup>

## *2. Cooperation at the United Nations*

The Soviet Union seems to have taken pride in recent years in its participation in the United Nations Committee on the Peaceful Uses of Outer Space. A major Soviet concern expressed at the U.N. over the past several years relates to progress in satellite communications technology. Achievements in the field have demonstrated the potential for direct television broadcasting via satellite. Currently, direct Western broadcasts to the Soviet Union and Eastern Europe are confined to radio. According to available statistics, these broadcasts command a substantial audience despite Soviet and East European attempts to jam many of the programs. The Soviets apparently fear that direct Western TV broadcasts would be still more effective.

In 1972, the Soviet delegation to the U.N. proposed a draft international convention aimed at establishing principles governing the use by states of artificial satellites for direct television broadcasting. Soviet delegates claimed that the proposal was directed against "attempts to sow discord and hostility among nations."<sup>109</sup>

## *3. Soviet Cooperation with Other International Organizations*

The Soviet Union participates in the activities of the International Astronautical Federation (IAF) through the U.S.S.R. Academy of Sciences. In October 1973, the IAF met for the first time in the Soviet Union, when it held its 24th Congress in Baku. The central theme of the Congress was space exploration and its influence on science and technology. The Congress was attended by some 800 Soviet delegates and close to 700 foreigners.<sup>110</sup>

Soviet scientists participated in the annual meetings of the Committee on Space Research (COSPAR). The Soviet Union hosted a conference on space medicine in 1971. The first international conference on communication with extra-terrestrial civilizations was held at the Byurakan Observatory.<sup>111</sup> On the basis of an agreement reached by the Soviet Academy of Sciences, the Soviet Union was to begin exchanging scientific information with the European Space Research Organization (ESRO).<sup>112</sup>

<sup>107</sup> Shkolenko, op. cit., p. 32.

<sup>108</sup> Soviet Academy Hosts Congenial International Space Conference. *Astronautics & Aeronautics*, Dec. 1973: 60.

<sup>109</sup> Shkolenko, op. cit., p. 34.

<sup>110</sup> Soviet Academy Hosts Congenial International Space Conference, op. cit., p. 58.

<sup>111</sup> Shkolenko, op. cit., p. 33.

<sup>112</sup> Petrov, op. cit., p. 3.



#### IV. SPACE COOPERATION: SOME GENERALIZATIONS

##### A. DEMONSTRATED SUCCESS IN COOPERATION

What emerges most significantly from a retrospective view of the Soviet attitude toward space cooperation during 1971–1975 are two fairly clear trends: (1) that by and large the Russians have maintained a positive attitude towards space cooperation unlike during the prior decade of the 1960s; and (2) that they have actively participated in space cooperation both on the bilateral and multilateral level—with the United States, France, India, and their East European allies on the bilateral, and within the United Nations on the multilateral.

Clearly, the predominating event in all cooperative undertakings was that of ASTP with the United States. After a decade of resisting vigorous American efforts to bring the U.S.S.R. into various cooperative arrangements, the Russians finally agreed to ASTP, a project requiring the closest kind of cooperation. Preparations for and the execution of ASTP exceeded all past expectations; space officials on both sides appeared to regard this effort as a high point in the Space Age.

##### B. FACTORS FAVORABLE FOR SPACE COOPERATION

Space cooperation of this intensity, on this scale and intimacy did not just happen; certain factors helped create favorable conditions, and the most important was detente in Soviet-American relations. The interaction of powerful forces on the international scene and in Soviet-American relations, already discussed in Chapter One, produced detente. In turn, this condition of easing tension encouraged sufficient mutual confidence to permit successful cooperative arrangements when vital interests (e.g., developing a mutual capability for space rescue missions) coalesced. Academician Vladimir Kotelnikov, acting President of the U.S.S.R. Academy of Sciences, summed up the detente factor in these words: "The present general improvement of the international situation and the betterment of Soviet-American relations on the whole promoted development of Soviet-American cooperation in space exploration, the emergence and implementation of a project of such complexity and scope as ASTP."<sup>113</sup>

Another factor favorable to encouraging space cooperation appears to be the growing awareness that conquering outer space is beyond the capabilities of one nation and requires the multiple energies of many countries, particularly the most advanced space powers, the United States and the U.S.S.R., in order to explore space efficiently, expeditiously, and effectively for the welfare of humanity. Dr. Petrov is on record citing this purpose as underlying Soviet arrangements for cooperation. In an interview before the launching of the spacecraft in the ASTP program, Petrov compared the current joint exploration of space with similar joint efforts in conquering terrestrial environments in the past. This "latest sphere" of the cosmos is so vast and

<sup>113</sup> Moscow, Tass, July 24, 1975. Iona Andronov reported from New York on the eve of ASTP: "All sober-minded Americans know that Soviet-U.S. cooperation in space is the fruit of the policy of detente." (Andronov, Iona. On the eve of the joint flight. *New Times*, no. 26, June 1975: 22–23.) K. Bushuyev, the technical director of ASTP on the Soviet side, remarked: "Of course, the development of this kind of cooperation is only feasible under the conditions of peaceful coexistence." (*Pravda*, Moscow, June 29, 1975:3.)

involves such difficult, "severe" conditions, he said, that the Soviet Union and the United States need to work together. By so doing they can expand their knowledge much faster—by devising experiments that neither could do separately, by selecting research priorities prudently, and by building on each other's experience.<sup>114</sup>

Other factors contributing to favorable conditions for space cooperation can probably be summed up as follows: a mutual desire to reduce costs;<sup>115</sup> in such enterprises at ASTP, an awareness of participating in "a great and responsible undertaking" (as Shatalov explained one Soviet view);<sup>116</sup> and a desire to use space cooperation as a political instrumentality for enlarging one's influence over one nation or a group of nations (as in the case of Soviet space policy towards India and the East European states respectively).

### C. DETERRENT TO SPACE COOPERATION

Data contained in this chapter and that included in Chapter I suggest the primary motivating factor in space cooperation; namely, detente or easing of tensions in Soviet-American political relations. As *The New York Times* said editorially of ASTP, this mission was "primarily political," and when President Nixon and General Secretary Brezhnev agreed to it, both sides wanted the most dramatic possible public demonstration of detente in action. Thus, Secretary of State Kissinger could say in his Minneapolis speech on July 15, 1975, when he defended detente, that, "today's joint manned mission in space is symbolic of the distance we have traveled."<sup>117</sup> And as K. Bushuyev, ASTP director on the Soviet side, said, the development of cooperation on the scale and intensity of ASTP "is only feasible under the conditions of peaceful coexistence."<sup>118</sup>

If improving relations was the primary factor in expanding space cooperation, then conversely movement away from detente with a hardening of political positions in the international arena and an exacerbation of global rivalries as in the Cold War days of the 1950s and 1960s, would create a formidable deterrent to further space cooperation, whatever the technical rationale for it. The Kohler argument that the Russians perceive space cooperation within the context of political relations cannot be dismissed as irrelevant. This is a truism; the Russians themselves are the first to acknowledge the vital connection between political relations and space relations. It is not by accident that the burst of space cooperation culminating in ASTP during the period under review coincided with the qualitative change in Soviet-American relations from confrontation to negotiation, from a harsher conflictual relationship to one more moderate and less acutely adversarial.

<sup>114</sup> Pond, Elizabeth. What the Soviets Say. *Christian Science Monitor*, July 11, 1975:17. Petrov wrote in *Kommunist*: "The purposefulness of actions resuming a specific practical aspect is what is most characteristic of present-day studies with the help of space technology. Such problems are factually infinite and their solution inevitably requires the joint efforts of many countries. It is entirely natural, therefore, that outer space has become the arena of international cooperation. In our days, when considerable positive changes are occurring in the foreign political atmosphere, the scientists are acquiring more favorable opportunities to broaden scientific relations and to exchange experience and utilize scientific and technical achievements to meet the practical requirements of mankind." (Petrov, op. cit., p. 99-100.) Cosmonaut Leonov expressed the same idea when he wrote, "I agree, that is the humanistic aspect of the future experiment. But let us look into the future. The idea is becoming stronger in the world that the conquest of space is the business of all nations." (USA, No. 7, July 1975 (JPRS Aug. 14, 1975:4).)

<sup>115</sup> On this matter Sheldon writes: "Money savings are problematical, except as someday sharing of data might permit a division of missions as between one planet and another, for example. Useful also are the proposed biomedical data exchanges." (Sheldon, op. cit., p. 85.)

<sup>116</sup> Moscow, Tass, July 2, 1975.

<sup>117</sup> Detente in Space. (Editorial). *New York Times*, July 16, 1975:37.

<sup>118</sup> Pravda, Moscow, June 29, 1975:3.



## D. FUTURE PROSPECTS FOR SPACE COOPERATION

Thus, consideration of future prospects for Soviet-American space cooperation logically begins within the parameters of political relations and a determination on the durability of detente. As Chapter One



By Auth for the Philadelphia Inquirer

Source: Washington Post, July 18, 1975, p. A26.

FIGURE 4-1

suggests, detente is now being put to a great test as 1975 comes to a close: the Soviet Union and the United States have come to grips with the issue that lies at the very heart of the concept; namely, military detente and efforts to resolve differences in SALT II and MBFR negotiations. Aggravating the environment of relations is also Soviet intervention in Angola. Still, a more fundamental and discordant element working against the purposes of detente, in addition to the inner dynamics of the great power conflict that underlay Soviet-American relations, is Soviet insistence that there can be no detente in ideology and that the "struggle" against world capitalism (i.e., the United States, its allies, and non-Communist countries), perceived in multiple ways, must continue. (Figure 4-1 graphically portrays the presently existing adversarial relationship between the Soviet Union and the United States; a handshake in space—ASTP—becomes an arm-wrestling match on Earth.) Accumulating evidence by the end of 1975 suggests to some observers of the Soviet political scene that an internal debate is now taking place on the merits of detente and the desirability of changing that policy to a more aggressively oriented revolutionary line. Advocates of this approach urge taking political advantage of what they perceive to be a "weakened" international capitalistic system.



Placed in the context of growing American disenchantment with detente which has been fed by a durable distrust of the Soviet Union, these developments suggest that detente in Soviet-American relations is heading for trouble. A countervailing factor to this tendency is the belief that both sides, faced with the common danger of nuclear war in an environment of deteriorating relations and judging relationships from the position of realism, would want to pursue a policy of negotiation, not confrontation.

It is, therefore, in the continuation of detente that advocates of space cooperation must seemingly place their hopes for the future. They can take further encouragement from the fact that Soviet space literature is abundant with references to the Soviet commitment to the principle of space cooperation, a commitment somewhat demonstrated by performance. (In comparison with the U.S. program of space cooperation, however, the Soviet program was late in developing and has been highly political and selective.) This commitment was reaffirmed in the immediate post-ASTP period when expectations were voiced by both sides that here was a beginning from which plans for other joint missions could evolve.<sup>119</sup>

<sup>119</sup> Brezhnev said in his congratulatory message to President Ford: "Being an important milestone in cooperation between the U.S.S.R. and the U.S.A. in the exploration and use of outer space for peaceful purposes, the accomplished joint flight lays a foundation for the possible subsequent Soviet-U.S. projects in this field." (Moscow, Tass, July 24, 1975.)

Vereschetin wrote in his survey of Soviet-American space cooperation: "For all the historic importance of the first international flight into space under the Soyuz-Apollo project, it is only a stage in realising the Soviet-American Agreement on Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes. While continuing current joint or coordinated work in the exploration of space the USSR Academy of Sciences and NASA have been studying the possibilities of further major bilateral projects in the future." (Vereschetin, op. cit., p. 38.)

In response to a question on what forms of international cooperation could be anticipated for space research in the future, Academician R. Z. Sagdeyev, Director of the U.S.S.R. Academy of Sciences' Institute of Space Research replied: "At the initial stage it was limited mainly to an exchange and discussion of results obtained, to a comparison of methods and, at best, to the coordination of certain projects. Then came the period of multilateral cooperation in ground observations of space experiments. Priority has now been given to joint work in the direct sense, including the creation of space vehicles through the joint efforts of various states and the utilization of such vehicles for scientific and national-economic purposes. That is precisely the nature of the present cooperative work in space by the socialist countries. The cooperation of the U.S.S.R. with certain capitalist countries—with France, for example—is also developing successfully on that basis.

"As concerns forms of cooperation, I believe the optimal form was found in preparations for the Apollo-Soyuz Experimental Program. Joint Soviet-American working groups were set up throughout the experiment to deal with various problems: scientific experiments, systems for the approach and docking, etc. Such forms will doubtless be used in the future as well. They can be modified, but the basic idea will remain the same, i.e., international working groups." (Soyuz-Apollo—a Start Has Been Made, Pravda, Moscow, July 24, 1975-2, translated in, Current Digest of the Soviet Press, v. 27, no. 30, Aug. 20, 1975:3-9.)

During his post-ASTP visit to the U.S. Cosmonaut Leonov remarked at a Washington press conference: "It would be utterly incorrect for either country to duplicate the space efforts of the other. I am sure that our joint project, Soyuz-Apollo, is only the beginning of our still closer cooperation in space." (New Times, no. 44, Oct. 1975:21.)

American press reports at the time of ASTP referred to discussions under way for future space cooperation. David F. Salisbury of *The Christian Science Monitor* wrote on July 11, 1975 (p. 11): "There have already been some informal discussions between the U.S. and Soviet Union concerning future joint missions. According to American officials, the Soviets have shown a great deal of interest, particularly for manned missions. A Soviet space laboratory which could be carried in the U.S. space shuttle is being considered."

John Noble Wilford of *The New York Times* wrote on July 24, 1975 (p. 58): "Glynn S. Lunney, American technical director of the Apollo-Soyuz project, is convinced that the mutual trust and experience derived from the mission can be the foundation for much more ambitious and scientifically productive joint missions in the nineteen eighties. These could lead to some sharing of the cost of space exploration and avoid some duplication of effort. Soviet and American space officials are expected to meet this fall to negotiate a new agreement that could lead to a joint mission involving the American shuttle, a reusable space vehicle now under development, and a larger version of the Soviet Salyut space station. The mission has even generated some heady talk about cooperation in journeys to the distant planets and human colonization of artificial 'worlds' in orbit near the Moon. This may be only talk, or it may be a glimpse of the future. As with the summit conference, the importance of Apollo-Soyuz in the history of man will depend on the follow-through."

On July 28, 1975, Christopher Wren of *The New York Times* reported from Moscow on future space cooperation with the U.S. Soviet space officials were reluctant as ever to discuss future Soviet plans after ASTP, he wrote. "Even the most topical question of new Soviet cooperation with the United States in space is politely but firmly turned aside, pending the outcome of joint discussions planned later this year." He also noted that while "there is a distinct interest in exploring further opportunities for Soviet-American space cooperation, Soviet scientists are also promoting joint ventures with colleagues elsewhere in the world." Wren reported also that Viktor Blagov, an assistant Soviet flight director of ASTP, proposed in mid-July that "possibly we could use each other's equipment and knowledge" in developing a reusable space shuttle to ferry men and materials back and forth. According to Wren, the idea "has not yet been echoed at the policy-making level." (New York Times, July 28, 1975:34.)

Perhaps not much more than this can be said about the future prospects of space cooperation between the Soviet Union and the United States, except for the assurances that Senator Frank E. Moss, Chairman of the Senate Aeronautical and Space Sciences Committee, and NASA's Deputy Director George M. Low gave on the value of space cooperation as an instrumentality for peace and the survival of mankind.

In a speech entitled, "Let the Diplomats Learn from the Engineers," delivered to the American Institute of Aeronautics and Astronautics in June 1973 at Philadelphia as the Annual Dandridge M. Cole Memorial Lecture, Senator Moss observed that the major objective of international cooperation was to reduce tensions and bring people together in international activities in order to satisfy their mutual interests. Diplomats and foreign policy negotiators, he said, had much to learn from the methods and procedures of scientists and engineers; for they "add an important psychological thrust which makes for great achievement." Enthusiastic about their projects and being "mission-minded", they become a team, regardless of country of origin, intent on problem solving and making things work. The Senator concluded:

To apply science and technology in meaningful ways anywhere in the world will take international cooperation. National geographic boundaries shrink in significance. Political rivalries recede. Man is an earthling in the universe. Our commonality cements our interests. International cooperation in space is a tool—to help man move toward a better tomorrow.<sup>120</sup>

Dr. Low expressed a similar theme on the value of space cooperation when he told a convention of aerospace writers in the spring of 1975:

Space exploration offers a peaceful outlet for man's aggressive instincts. Nations that work together to reach the stars are that much less likely to descend together into the depths of war and desolation. Space holds the ultimate solution to many of the pressing needs of humanity, perhaps even the very survival of our species.<sup>121</sup>

Thus, space cooperation has an intrinsic worth of its own; and while acknowledging its limitations, it can nonetheless be a useful instrument of peace in the politics of nations.

<sup>120</sup> Moss, Senator Frank E. Let the Diplomats Learn from the Engineers. *Astronautics & Aeronautics*, v. 11, Sept. 1973:18.

<sup>121</sup> Quoted in, *Christian Science Monitor*, July 11, 1975:11.





## CHAPTER FIVE

### SOVIET ATTITUDES TOWARD OUTER SPACE LAW

By Domas Krivickas and Armins Ruis\*

#### I. GENERAL PRINCIPLES OF OUTER SPACE LAW

In the introduction to the *International Law of Outer Space* prepared by the leading Soviet jurists in the field of international space law (V. V. Aldoshin, E. G. Vasilevskaya, V. S. Vereshchetin, B. G. Dudakov, G. P. Zhukov, V. G. Zhurakhov, A. I. Ioirysh, Iu. M. Kolosov, V. N. Kuliabiakin, P. I. Lukin, B. G. Maiorskii, A. S. Piradov, A. I. Rudev, and V. G. Emin) and published by the Institute of State and Law of the Academy of Sciences of the U.S.S.R., great importance is attached to the cooperation between the leading space powers, the U.S.S.R. and the United States, for the establishment of close ties in the field of the exploration and use of outer space:<sup>1</sup>

A number of agreements concluded between these two countries during high level visits in May 1972 and June 1973 marked the transition from confrontation to an easing and cooperation in Soviet-American relations.

The need for international cooperation was also stressed by E. G. Vasilevskaya:<sup>2</sup>

No State, irrespective of its high level of scientific and technical development, can solve the complex problems of the exploration of celestial bodies alone. International collaboration has a particularly great importance for the solution of those problems which have a practical, applied trend, such as problems of outer space communications, outer space meteorology, etc.

Because of this cooperation, new agreements were reached pertaining to certain areas of outer space, and some progress was made in other subjects under discussion by the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space, namely, the Moon, telecommunications, direct broadcasting, remote sensing of natural resources by means of space technology, and others.

Currently there are four major treaties pertaining to outer space:<sup>3</sup>

1. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (1967);

2. The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space (1968);

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<sup>1</sup> *Mezhdunarodnoe kosmicheskoe pravo* (International Outer Space Law) [hereafter cited as *Mezhd. kos. pr.*]. Edited by A. S. Piradov, Moscow, 1974. p. 4. This work includes a complete Soviet bibliography on international outer space law up to 1972 on p. 253-267.

<sup>2</sup> E. G. Vasilevskaya. *Pravovye problemy osvoeniia luny i planet* (Legal Problems in the Mastering of the Moon and Planets) [hereafter cited as *Prav. problemy*]. Moscow, 1974. p. 5. See also Iu. M. Rybakov. "Mezhdunarodno-pravovoe sotrudnichestvo v Kosmose" (International Legal Collaboration in Outer Space) *Sovetskoe gosudarstvo i pravo*, 1970. No. 2, p. 40-47.

<sup>3</sup> "The number of nations that have ratified each of the treaties in force is different in each case. In the case of the Treaty on Outer Space, there are 55 ratifications and 11 accessions. The Astronaut Agreement has 46 ratifications and 13 accessions and the Liability Convention has 24 ratifications and 4 accessions." *Journal of Space Law* [hereafter cited as *JSL*], v. 2, No. 2, p. 141.

3. The Convention on International Liability for Damage Caused by Space Objects Launched into Outer Space (1971); and

4. The Convention on Registration of Objects Launched into Outer Space (1974).

Two other treaties are indirectly related to outer space:

1. The Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Underwater (1963) and

2. The Nuclear Non-Proliferation Treaty (1968).

The above-mentioned Soviet jurists, analyzing the problems of outer space, have stressed the close relations between law and foreign policy:<sup>4</sup>

It is impossible not to take into account the indissoluble connection of law and foreign policy. The mastering of outer space is likewise connected with questions of foreign policy. In our days the leading principle for the carrying out of all foreign policy by States must be the principle of peaceful co-existence, which undoubtedly, is applicable also to outer space activities.

In spite of this new spirit of cooperation, the basically negative attitude of Soviet writers towards the Western position remains unchanged:<sup>5</sup>

The imperialistic powers are seeking to make the area of developing foreign relations subservient to their interests, to their class goals. The task of socialist countries is to ensure that international relations serve the cause of peace and socialism. It is necessary to defend the interests of the progress of all mankind and to limit to the utmost the possibility of the abuse of international relations by imperialism.

The Soviet representative in the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space Law, A. S. Piradov, characterized the problem of the attitude of American lawyers toward outer space law as follows:<sup>6</sup>

Thus, in the theory of outer space law, the American party tries to bring two approaches to life. One of them—the endeavor to create an extremely great number of outer space law problems—thrusts their discussion upon scholars, diplomats, and statesmen and by so doing drowns the basic problems in a stream of small problems having no great practical significance. The other approach is clearly expressed in the activities of American diplomats and jurists in the course of the work of the Legal Subcommittee of the United Nations Committee on Outer Space. It may also be observed in many other international organizations in which representatives of the United States are present. In essence, it consists of the fact that the Americans try to act from a “position of strength,” endeavor to stress their [own] procedures and to thrust their opinion upon other countries.

Soviet legal science proceeds from the concept that outer space law is an independent new branch of international law, integrated into the general system of international law. And in Piradov's collective work mentioned above, outer space law is defined as follows:<sup>7</sup>

<sup>4</sup> Mezhd. kos. pr., *supra* note 1, p. 14. Furthermore, a detailed analysis of the influence of foreign policy upon the development of international law is given by G. I. Tunkin, *Theory of International Law*. Translated with an introduction by W. E. Butler, Cambridge, Mass., Harvard University Press, 1974, p. 271 ff.

<sup>5</sup> I. I. Lukashuk, *Otnosheniia mirovogo sossuschestvovaniia i mezhdunarodnoe pravo* (Relations of Peaceful Coexistence and International Law). Kiev, 1974, p. 189. See also: *Tendentsii razvitiia kosmicheskogo prava* (Trends of the Development of Outer Space Law) [hereafter cited as *Tendentsii*]. Moscow, 1971, p. 30-31.

<sup>6</sup> “The achievements of science for the peaceful use of outer space must be the property of all mankind, all countries, irrespective of their technical level. Each of these countries may and must contribute to the development of principles and norms of international law in this field. International collaboration in outer space will be fruitful and universal.

<sup>7</sup> “Does it mean that outer space law develops without conflicts and that in its formation it does not encounter difficulties and that there are no contradictions? The present outer space law is the result not only of collaboration, but also of sharpest struggle. . . .

“The task of Soviet diplomacy is—and in the future [will remain]—to tirelessly struggle with the intrigues of imperialists who are attempting to establish in outer space ‘the rights of the powerful,’ so that we may succeed in making outer space the sphere of peaceful exploration.”

<sup>8</sup> A. S. Piradov, *Kosmos i mezhdunarodnoe pravo* (Outer Space and International Law) [hereafter cited as *Kosmos*]. Moscow, 1970, p. 30.

<sup>9</sup> Mezhd. kos. pr., *supra* note 1, p. 33.



In most general terms outer space law is defined as a special branch of international law, as the totality of norms and principles governing the relations between states for the mastering and use of outer space.

However, they agree that the basic element of outer space law, namely, the concept of outer space itself, still remains undefined, and the problem of the delimitation of airspace and outer space is as yet unsolved.

It is generally admitted that airspace is dominated by the principle of sovereignty and outer space by the principles of freedom of exploration and use and of non-appropriation. Therefore the delimitation problem of airspace and outer space has been and remains a major problem under discussion.

As pointed out by Irwin L. White:<sup>8</sup>

In outer space, as on Earth, the questions of delimitations and territorial sovereignty are interrelated. Both questions are related to the desire of national decision-makers to fix nation-state boundaries . . . .

There has not yet been any great pressure on decision-makers to formulate detailed rules on sovereignty and delimitation in outer space. Those who advocate immediate establishment of detailed rules hope to avoid conflict in the space environment by establishing rules before a conflict situation can develop.

The Soviet attitude toward this problem of delimitation of outer space and airspace has been presented as follows:<sup>9</sup>

In the Soviet legal literature the most frequently used formulation is the "upper limit of State sovereignty" or the "upper border of sovereignty." It seems that these two terms—also not completely covering the essence of this complicated and diversified problem—are the most acceptable: in them, it reflects, as a minimum, a need to take into account the state's sovereignty.

The task is that of establishing and achieving a practical solution, which would permit the delimitation of the sphere of action of outer space law and air law in order to avoid a conflict [between] them and, to the ultimate degree, to secure the legal rights of all states, of those launching outer space apparatuses, as well as of those [over] whose territories these apparatuses cross. In addition, it should be taken into account that violation of state sovereignty might be of two kinds: first, as the result of a direct crossing, by the outer space apparatus, over foreign territory at such a height that this might create a threat to safety of transportation, or to military, economic and political interests of other states; and on the other hand, the violation of sovereignty might take place when the outer space apparatus travels at a high level (for instance, Sputnik NTB at a height of 36 thousand km. over the Earth); nevertheless, it has the possibility of exercising influence within the limits of the territories of a state or of several states.

Vahan G. Emin, a Soviet jurist, in his report "Spaceflight and the Problem of Vertical Limit of State Sovereignty"—considering that the majority of states proclaim the principle of full and exclusive sovereignty of a State over the superjacent airspace above its territory, on the one hand, and the principle of freedom of space activities of all States as established in the 1967 Outer Space Treaty, on the other hand—points out that the existence of two legal regimes already has posed a number of questions.

He states further:<sup>10</sup>

Taking into account the main factors determining the rights of states engaged in space activities and subjacent states as well as the prospects of the development of space activities, it should be admitted that the optimal way of solution, meeting

<sup>8</sup> I. L. White and others. *Law and Politics in Outer Space*. Tucson, Arizona, The University of Arizona Press, 1972. p. 15-17.

<sup>9</sup> Mezhd. kos. pr., *supra* note 1, p. 23-24.

<sup>10</sup> V. G. Emin. "Spaceflight and the Problem of Vertical Limit of State Sovereignty." In *Proceedings of the Fourteenth Colloquium on the Law of Outer Space*. International Institute of Space Law of International Astronautical Federation. September 20-25, 1971. Brussels, Belgium. Davis, California, The University of California School of Law, 1972 [hereafter cited as *Fourteenth Colloquium*], p. 203.



to the greatest extent possible the interests of all states, lies in the organic combination and ensurance of both the air sovereignty and the freedom of space activities of all states.

The Polish jurist Manfred Lachs has made the following judicious observations on this problem:<sup>11</sup>

The value and interest of the frontier are linked in their turn with the basic motivation by which States have been guided in their claims to sovereignty over the area bordering with outer space. There can be little doubt that this has been, and remains, national security.

As long as the State had not been threatened from above, it limited itself to the affirmation of the principle itself, and there was no valid reason for it to make any further detailed arrangements to this effect. With the advent of aircraft, States became anxious to protect themselves against whatever threat to their security these new flying objects might entail. This is clearly reflected in the principles and rules of aerial navigation. A State's rights over the air above its territory, as indicated earlier, were reasserted. How jealously they have been guarded and applied is illustrated by the practice of the last half-century.

Now, new objects have made their appearance in space. Though much further [sic] away, circling in their orbits or shooting upwards and coming down, do they constitute a new factor affecting the security of the States below? The development during the last few years offer [sic] an unequivocal reply. The issue of security has not only retained its decisive importance: it has acquired an even greater emphasis. This is so whatever the point or line chosen, since the danger looming in outer space cannot be measured by distance. Modern technology has created possibilities for penetrating a State's exclusive domain from much greater distance than ever before. Hence the interest of States that activities in the vast dimensions above their territories should not become a threat to their security. Hence also their desire to take into account the nature of any activity carried out in the new dimension, to consider it on its merits, to judge it by its objectives and the consequences it produces within the areas of the sovereign rights of States.

Bearing in mind both theoretical and practical considerations, I advanced some years ago the view that there were no cogent reasons for States to proceed with the delimitation of the frontiers between airspace and outer space, maintaining that while the dimensions of a State's sovereignty above its territory are limited, the boundaries thereof need not necessarily be defined. In fact, the lack of an established frontier has not so far created any special difficulties, nor has it constituted an obstacle to the formation and development of principles and rules of outer space law.

However, with the growth of activities in outer space such a delimitation would offer clear advantages. It would prevent the misunderstanding or even friction to which uncertainty tends to give rise, facilitate international co-operation [etc.] . . .

Soviet authors flatly reject the concept of "aero-outer space law" as contrary to the concept of State sovereignty:<sup>12</sup>

The most harmful seems to be the concept on the basis of which the name of the new branch of law is called "aero-outer space law." The concept of "aero-outer space law" presupposes the establishment of a uniform legal regime for the entire space over the Earth—both airspace and outer space. Insofar as the principle of the freedom of outer space has already found recognition, a uniform legal regime of space over the Earth would mean the renunciation of the principle of full and exclusive sovereignty of the States over the airspace located over their territories. The proponents of renunciation of the principle of State sovereignty over the airspace located over their territories are found among such jurists as D. Cooper, F. Shick (USA), D. Goedhuis (Netherlands), R. Quadri (Italy), W. Jenks (England) and others.

<sup>11</sup> M. Lachs, *The Law of Outer Space*, Leiden, Sijthoff, 1972, p. 57-58.

<sup>12</sup> Mezhd. kos. pr., *supra* note 1, p. 13. See also Kosmos, *supra* note 6, p. 36-37.

"The doctrine of the identity of outer space and the Earth atmosphere is especially fervently advocated by the representatives of the military circles of the USA. Going even further they maintain that on the planet [Earth] along with an open sea there must be also an open sky.

"The analysis of similar opinions leads to fully clearcut conclusions. As long as there exist on Earth two contrary socio-political systems, the principle of sovereignty will have great significance. Renunciation by a State of sovereignty over airspace could establish a dangerous precedent. After this it would be possible to speak of renunciation of the principle of sovereignty in general."

Soviets attach a particular importance to the general principles established by the Outer Space Treaty of 1967, namely:

1. Freedom of exploration and use of outer space and celestial bodies;
2. Non-appropriation of outer space and celestial bodies;
3. Exploration and use of outer space in accordance with the fundamental principles of international law, including the basic principles of the U.N. Charter;
4. Partial demilitarization of outer space and complete demilitarization of celestial bodies;
5. Retention by the States of sovereign rights to objects launched into outer space;
6. Responsibility of the States for national activities in outer space, including damage caused by space objects;
7. Prevention of potentially harmful consequences of experiments in outer space and on celestial bodies;
8. Assistance to personnel of spacecraft in the event of accidents, distress, emergency or unintended landing;
9. Promotion of international co-operation in the peaceful exploration and use of outer space and celestial bodies.

The Soviets consider that these principles constitute the highest norms of outer space law and that further agreements on exploration and use of outer space should not contradict them.<sup>13</sup>

These principles determine the peculiarities of international space law as a separate branch of the general international law. They precondition the fundamental directions of the further forming of international outer space norms as applied to a concrete relationship originating between states in the process of carrying out their outer space activities.

Furthermore, the principles of international outer space law are the criterion for the legality of such concrete international outer space norms. This particularly manifests the fundamental importance of outer space law within the framework of a general system of that law.

While the State has the right to enter into any international agreement connected with the activity for mastering outer space for peaceful purposes, such agreements, at the same time, should not contradict the basic principles of outer space law.

In more explicit terms, R. V. Dekanozov stresses that principles of non-appropriation and common use should be considered *jus cogens*.<sup>14</sup>

<sup>13</sup> Mezhd. kos pr., *supra* note 1, p. 69. See also Y. M. Kolosov, "Interrelations Between Rules and Principles of International Outer Space Law and General Rules and Principles of International Law." In Proceedings of the Sixteenth Colloquium on the Law of Outer Space, International Institute of Space Law of the International Astronautical Federation, October 7-13, 1973, Baku, U.S.S.R. Davis, California, The University of California School of Law, 1974 [hereafter cited as Sixteenth Colloquium], p. 45-48.

<sup>14</sup> R. V. Dekanozov, "Relationship Between the Status of Outer Space and the Statuses of Areas Withdrawn from State Sovereignty." Sixteenth Colloquium, p. 11. Similar conclusions also were made by Marco G. Marcoff:

The basic part of that Treaty consists of a certain number of imperative norms of common international law, the derogation or deviation from which is impossible (*jus cogens*). These unpublished and generally mandatory rules of the Treaty of 1967 which were introduced as in the common basis of contemporary international law are as follows:

The basic norm that exploration and use of outer space and celestial bodies may be made only for the benefit and interests of all countries (Art. I, par. 1);

The principle of the free access and free exploration and use of outer space and celestial bodies under conditions of legal equality and in conformance with international law (Art. I, pars. 2 and 3);

Exclusion of national appropriation and territorial sovereignty in outer space and celestial bodies (Art. II);

Partial demilitarization of outer space and total non-militarization of the Moon and other celestial bodies (Art. IV);

Supernational immunity of astronauts (Art. V), which imparts to them international treatment equal to that which is accorded by the state to its own citizens. One of the immediate consequences of that rule which did not exist in the pre-outer space international law is the return of astronauts to their country of origin (Art. V, par. 1, and Agreement of 1968). This measure, however, depends on the will of the particular individual.

M. G. Marcoff, *Traité de droit international public de l'espace*, Fribourg, 1973, p. 101-102.



The concept of an international area for common use does not extend, of course, to all outer space, to the universe, but just to a portion of it, where intelligent beings inhabiting other planets or extraterrestrial civilization are known to be absent. To be more precise, it covers *near* space, circum-terrestrial space, including the Moon and other uninhabited celestial bodies which will be explored and used by mankind in the foreseeable future.

With reference to an international area for common use the principle of non-appropriation denotes that this area (both as a whole and on its separate parts) shall not be subject to appropriation either by claim of sovereignty, occupation, through use, or by any other means . . .

The principles of non-appropriation and common use are vitally important for mankind. They concern the interests of the whole international community and therefore should be considered as *jus cogens*.

Thus, the Soviets consider these general principles of the Outer Space Treaty as *jus cogens* of international outer space law. It seems, however, that this criterion is not applied to the agreements between so-called Socialist countries:<sup>15</sup>

As has been pointed out previously (see Chapter 8), the most important principles of contemporary international law are of an imperative character, and states may not establish in their bilateral or local multilateral relations norms which would contravene these fundamental principles.

There is no doubt, however, that the principles of *jus cogens* are not principles which do not allow the progressive development of international law and the creation on the basis of equality and voluntariness of local international legal norms of general international law in developing friendly relations among states and ensuring peace, that reflect a higher degree of international integration than general international law.

Moreover, being the law of peaceful coexistence of states with a different social system, contemporary general international law can not impede the creation of local international legal norms which by their social content are distinct from norms of general international law. In co-relation with general international law, the international legal principles of socialist internationalism are just such local principles.

The principles of proletarian internationalism and other socialist norms arising in relations between countries of the socialist camp are international law—a socialist international law, the basis of which is being formed in relations among states of the socialist system and which is coming to replace contemporary general international law.

The outer space activities of States affect the interests of all mankind. As observed by Dr. Ernst Fasan, the law of outer space introduced a new term into legal language, the term "mankind."<sup>16</sup>

Mankind, Humanity, Menschheit, Humanitas, is at first, like every noun, a piece of language, and as such, it is a term with a semantic meaning. This meaning is not difficult to grasp: "mankind" is the notion for the whole to all human beings, the whole of humanity. The question is, therefore, whether there is a special legal meaning for the term "mankind;" that is, whether "mankind," the "*societas humana*" of Cicero, is really a legal notion of its own, and if so, in what sense.

<sup>15</sup> Tunkin, *supra* note 4, p. 444. See also D. B. Levin. Aktual'nye problemy teorii mezhdunarodnogo prava (Current Problems of the Theory of International Law). Moscow, 1974. p. 134:

The basic principles of international law regulating the reciprocal relations of socialist countries constitute a harmonious system of socialist international legal principles. Its highest source—the principle of socialist internationalism, to which are subordinated all other principles.

<sup>16</sup> E. Fasan. "The Meaning of the Term 'Mankind' in Space Legal Language." JSL, v. 2, No. 2, p. 125. The same conclusions were made also by I. H. Ph. Diederiks-Verschoor:

Space law not only dealt with new legal objects, such as Outer Space, the Moon and other celestial bodies; it began to deal with a legal subject, too. It began to deal with the whole of *mankind*. . . . Already on December 13, 1958, the General Assembly of the United Nations recognized "the common interest of mankind in outer space. . . ."

In the Space Treaty of January 27, 1967:

a. "The common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes" is once more recognized;

b. It is believed "that the exploration and use of outer space should be carried out for the benefit of all people . . ." (which is a new formulation broadening the idea of the whole of mankind);

c. Agreed . . . that "the exploration and use of outer space, including the Moon and other celestial bodies . . . shall be the province of all mankind."

I.H. Ph. Diederiks-Verschoor. "The Impact of Space Law on General International Law." Sixteenth Colloquium, p. 19.



The area of outer space law which originally centered on the exploration of outer space and the stars has expanded in scope to include outer space activities directed towards Earth—use of outer space for the purpose of scouting Earth from outer space. Commenting on this new development, a German writer on outer space law has voiced the opinion that, as a result of these two kinds of outer space activities, there exist also two kinds of outer space law. He concludes the following:<sup>17</sup>

Concomitant with the fact that the emphasis of outer space activities has shifted toward outer space utilization, the functional aspects of outer space law have more explicitly assumed a dual character. While the new branch of law, proceeding from outer space exploration activities, was at the outset oriented toward outer space, another increasingly important aim [thereof] refers back to the Earth. It is probable that this development—if it does not impart a double meaning to the concept “outer space law”—will at least result in a distinctive subdivision into “outer space exploration law” (*Weltraumforschungsrecht*) and “outer space utilization law” (*Weltraumnutzungsrecht*).

## II. CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS

For more than a decade, the problem of international liability for damage caused by space objects provoked serious discussions between scholars and, in particular, between the members of the Legal Subcommittee of the Committee for Peaceful Uses of Outer Space. Finally, when a compromise on an agreement was reached between the United States and the U.S.S.R. in 1971 on two remaining especially sensitive subjects—namely, the law applicable for assessment of damage and the procedures applicable for the settlement of disputes—the draft of the Convention on International Liability for Damage Caused by Space Objects was brought to a close.<sup>18</sup> On November 29, 1971, the U.N. General Assembly by its Resolution 2777 (XXXI) endorsed the draft, and recommended it for ratification by all states.<sup>19</sup>

When, in considering the problem of the international liability for damage caused by space objects, the United States in 1962 introduced a proposal on “Liability for Space Vehicle Accidents,” the Soviet representative Tunkin remarked that this problem is not a major factor in maintaining peace and security, and compensation would undoubtedly be payable under existing laws.<sup>20</sup>

Nor did Soviet legal scholars and Soviet representatives on the Legal Subcommittee show any particular interest in this problem. For the most part, they were satisfied with endorsing the attitude taken by the East European countries, especially that of Hungary. Even

<sup>17</sup> W. von Kries, “Abhandlungen zur Fortentwicklung des Weltraumrechts,” *Zeitschrift für Luftrecht und Weltraum-Rechtsfragen* [hereafter cited as ZLW], v. 23, 1974, p. 94.

<sup>18</sup> Concerning the need of this compromise, Rear Admiral Alan Shepard stated:

I would like to explain in clear terms the dilemma faced by the Outer Space Committee and the Legal Subcommittee on this point. From the outset of negotiations in the early 1960's, we had witnessed extremely strong and persistent objection to arbitration in general and to binding awards in particular. It became clear in 1970 that our common choice was to agree to strong provisions on settlement of claims with only recommendatory awards and an option to make them binding or to insist on binding decrees in the knowledge that this would make impossible the conclusion of the convention and not just for 1 or 2 years but more likely for 5, 10 years, or a completely indeterminate period.

The Department of State Bulletin, January 10, 1972, v. 66, No. 1698, p. 36-37.

<sup>19</sup> The Liability Convention entered into force on the deposit of the fifth instrument of ratification on September 1, 1972, in accordance with Art. XXIV (3).

<sup>20</sup> U.N. Doc. A/AC.105/C.2/SR.1 (August 22, 1962), p. 3.

since the signing of the Convention, the Soviet scholars have restrained their comment to a simple repetition of the text of the Convention.<sup>21</sup>

The principle of international liability was incorporated in Article VII of the Space Treaty of 1967, but it does not provide prompt compensation for the victim.<sup>22</sup> The establishment of rules for the implementation of the basic concepts of liability met with numerous difficulties arising especially from the differences of political systems. It was necessary, as the representative of Czechoslovakia Pisk stated, "to find a solution which would be acceptable to all States and in conformity with their laws, irrespective of their social system."<sup>23</sup>

The Convention on Liability deals with two main subjects: rules on liability for damage caused by space objects launched into outer space and the procedure for settlement of compensation to the victims of such damage.

The basic purpose of the Convention as stated in its preamble is to fulfill:

\* \* \* the need to elaborate international rules and procedures concerning liability for damage caused by space objects and to ensure, in particular, the prompt payment under the terms of this Convention of a full and equitable measure of compensation to the victims of such damage.

#### A. RULES ON LIABILITY

##### 1. Absolute Liability and Liability Based on Fault

In spite of an early tendency to introduce the criterion of risk as the only one for liability, the solution adopted by the Convention is based on a dual system of liability. According to the provisions of Article II of the Convention, the launching State shall be absolutely liable for damage caused by a space object on the surface of the Earth or to aircraft in flight.<sup>24</sup> The exceptions to this principle were established in Article VI, paragraph 1: exoneration from absolute liability shall be granted to the extent that a launching State establishes that the damage resulted either wholly or partially from gross negligence or from an act of omission done with the intent to cause damage on the part of the claimant state or of natural or juridical persons it represents.

The following is the opinion of W. F. Foster on the subject:<sup>25</sup>

\* \* \* The launching state bears the burden of establishing that it should be exonerated from liability. This burden cannot be discharged by proof of mere fault on the part of the claimant state or a person it represents. And even where the launching state can establish gross negligence or an intentional act or omission, it does not necessarily mean that it will be absolved of all liability, for the Convention provides that it will be exonerated only "to the extent" that it can prove that "the damage resulted either wholly or partially" from that gross negligence or intentional act or omission. It would seem, therefore, that, for a launching

<sup>21</sup> G. P. Zhukov, "Otvettstvennost' za ushcherb, prichiniaemyi kosmicheskimi ob'ektami" (Liability for Damage Caused by Outer Space Objects). In *Mezhd. kos. pr.*, *supra* note 1, p. 159 ff.

In the opinion of A. A. Rubanov, the following three reasons were the cause of the long delay in the preparation of the Convention on Liability:

First, public international law does not sufficiently provide for detailed rules on the problem of the liability of states. . . . Second, the novelty of outer space activities of states. . . . Finally, third, the parties to the Convention must be states that represent almost all present legal systems. Under present conditions, each party to a great extent oriented itself for the solution of problems of responsibility provided by its own civil law.

A. A. Rubanov, "Kosmicheskaya deiatel'nost' i otvetstvennost' gosudarstv" (Outer Space Activities and the Liability of States). In *Tendentsii*, *supra* note 5, p. 189-190.

<sup>22</sup> "This Treaty neither defines the concept of international liability nor establishes a mechanism for the presentation of claims and the prompt payment of appropriate compensation." W. H. Schwarzschild III, "Space Law—Convention on Liability—Procedure Established to Enforce Liability for Damage Caused by Space Objects." *Vanderbilt Journal of Transnational Law*, v. 6, 1972, No. 1, p. 263.

<sup>23</sup> U.N. Doc. A/AC.105/C.2/SR (August 25, 1971), p. 13.

<sup>24</sup> Zhukov, *Mezhd. kos. pr.*, *supra* note 21, p. 160-161. "Launching of outer space objects has to do with the so-called source of extra hazardous danger. A particular feature of such activities is the inherent possibility of causing damage, irrespective of all precautionary measures. Any damage caused as a result of activity connected with the source of extra hazardous danger, must be compensated irrespective of fault. Such liability is called absolute liability." See also Rubanov, *supra* note 21, p. 203.

<sup>25</sup> W. F. Foster, "The Convention on International Liability for Damage Caused by Space Objects." In *The Canadian Yearbook of International Law*, v. 10, Vancouver, 1972, p. 160-161.



state to avoid all liability, it would have to establish not only the necessary wrongful conduct on the part of the claimant state or a person it represents, but also that it was not itself at fault. If the launching state could not prove this latter fact, it would not have shown that the "damage resulted wholly" from the other's gross negligence or intentional act or omission, and it would therefore be entitled only to partial exoneration from liability. Partial exoneration would be available to a launching state where it could prove that the claimant state had failed either through its gross negligence or an intentional act or omission, to mitigate its damage.

In the event of damage being caused anywhere other than on the surface of the Earth to a space object of one launching state or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its own fault or to that of persons for whom it is responsible. (Art. III).

These two principles, absolute liability and liability based on fault, are also respectively applied in cases in which accidents occur anywhere other than on the surface of the Earth involving the space objects of two launching States causing damage to a third State or to its natural or juridical persons (Art. IV, a and b). The first two States are jointly and severally liable to the third State to the extent indicated in that Article.

In all cases of joint and several liability, the burden of compensation for the damage shall be apportioned between several States in accordance with the extent to which they were at fault.

Whenever two or more States jointly launch a space object, they are jointly and severally liable for any damage caused (Art. V, 1). In such a case, the claim may be introduced against any of these States or against all of them. The State that paid compensation has the right of subrogation. The participants in a joint launching may make an agreement regarding the apportioning among themselves of the financial obligations. In order to avoid any misunderstanding, the Convention established also that any State from whose territory or facility a space object is launched shall likewise be regarded as a participant in a joint launching.

Special rules have been established by the Convention concerning liability connected with irregular outer space activities, namely, that no exoneration whatever shall be granted in cases in which the damage has resulted from activities conducted by a launching State which are not in conformity with international law, including, in particular, the Charter of the United Nations and the Outer Space Treaty of 1967. G. P. Zhukov expresses the following opinion on the subject: <sup>26</sup>

In case of damage caused as result of such activities, there is no exoneration. Therefore, even if the victim is at fault for the damage made to it, it has the right to claim full compensation for the damage. In such a way, the international liability for the damage, caused as the result of the irregular activity of the launching state, differs from international liability for damage caused as result of usual, normal outer space activities.

By virtue of the provisions of Article VII of the Convention, the provisions of this Convention shall not apply to damage caused by a space object of a launching state to:

- (a) Nationals of that launching state; or
- (b) Foreign nationals during that time when they are participating in the operation of that space object from the time of its launching or at any stage thereafter until it descends, or during such time as

<sup>26</sup> Mezhd. kos. pr., *supra* note 1, p. 161.



they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching state.

## 2. Damage

Article I of the Convention defines damage as follows:

The term "damage" means loss of life, personal injury or other impairment to health; or loss of or damage to property of states or of persons, natural or juridical, or to property of international intergovernmental organizations.

During discussions, several problems pertaining to damage were raised: indirect damage, deferred damage, moral damage, nuclear damage, etc.

In early discussions concerning indirect damage, many representatives considered that it was an ambiguous notion, and therefore it should be excluded.<sup>27</sup>

The representative of Hungary shared that opinion:<sup>28</sup>

It would be better to exclude indirect damage than to run the risk of reopening discussions on limitation of a casual relationship which has been pursued for long years without result. Such exclusion might result in injustices in certain cases, but it would have the great advantage of being unambiguous.

Mr. Vranken, representing Belgium and speaking on behalf of Brazil and Hungary concerning the joint proposal on damage of those three states, stated:<sup>29</sup>

With regard to the third component of liability, namely damage, there were many theories about the characteristics and content of damage and in the absence of legal provisions, the judicial precedents of particular countries had often filled the gaps. It should be noted from the outset that there was no consistent system which had been universally accepted.

Jurisprudence recognized four characteristics of damage, whatever its nature. Firstly, the damage should be sustained by the person—natural or juridical—claiming compensation. Secondly, compensation for damage must not have been paid already. Thirdly, the damage should affect an acquired right, which meant that the victim should have a legitimate interest. In order to know what constituted a legitimate interest, all the *de jure* and *de facto* elements of each particular case must be considered; it was clear, however, that an interest could be legitimate in Moslem law, and not be so in Scandinavian law. Fourthly, the damage should be certain, i.e., *natus et presens*. That qualification provided a clear-cut delimitation of the damage: it must be direct, on the basis of the first component of liability, i.e., cause; and it must be certain, i.e., it must be clearly manifest and any hypothetical damage must be eliminated. Each individual case should be therefore examined in order to establish the certainty of the damage.

With regard to the content of the damage, there were many different views. In the great majority of countries, such content was established by case law, which, incidentally, was far from unanimous. Any hope, therefore, of establishing a universal and uniform rule on the subject would have been in vain. The concept of *restitutio in integrum* in Roman law was, moreover, interpreted and applied in different ways according to the different legal systems in the world.

In view of the *de jure* and *de facto* situation, therefore, his delegation, together with those of Brazil and Hungary, has sought to draft a general text, with three considerations in mind: firstly, the rule should be "victim-oriented"; secondly, the injured party should be able to make use of every factor calculated to restore the *status quo ante*; thirdly, the text should be in keeping with the spirit, if not the letter, of General Assembly resolution 2733B (XXV) on international co-operation in the peaceful uses of outer space.

In his comments, William H. Schwarzschild III indicated five shortcomings concerning the recovery of damages:<sup>30</sup>

... Certain provisions of the Convention, however, are unclear and the construction given them when applied to actual claims may lead to the disallowance of recovery. First, the interpretation of the term "damage" presents a problem. The Convention does not mention nonphysical loss in the definition of "damage," and this raises the question whether the Convention was intended to compensate

<sup>27</sup> U.N. Doc. A/AC.105/C.2/SR.103 (June 20, 1968), p. 21.

<sup>28</sup> *Ibid.*, p. 24.

<sup>29</sup> U.N. Doc. A/AC.105/C.2/SR (August 25, 1971), p. 71.

<sup>30</sup> *Supra* note 22, p. 263-270.

victims for such injury. The Convention invites a broad interpretation of "damage" through its failure to offer an adequate definition of the term, but the scope of this definition can be circumscribed by a narrow application of the principle of causation in a particular case. It would be equitable to allow recovery for any reasonably foreseeable loss occasioned by the activities of a launching state. Whether a launching state could reasonably foresee the injury will depend upon the specific facts of each claim. The elements of compensable damage may vary in each situation until some workable standard of compensable damage is developed by the action of the negotiators or the Claims Commission. Secondly, once compensable damage is established, there is the additional problem of identifying the launching state, particularly as more nations engage in space activities. . . . Thirdly, article XII, the section that describes the formula used to calculate damages, leaves unclear whether damages for loss of profits or interest, loss of consortium, or moral damage are recoverable. Again it will be necessary for future mediators to advance uniform standards. Fourthly, although the Convention intended to devise a procedure for the prompt determination of just and equitable compensation, a period of two years or more may elapse before a claim is presented to the Claims Commission because of opportunities for extension of the stipulated time limits and because the various time limits run consecutively. . . . Fifthly, the Convention also may burden a smaller nation that joins a larger nation in space activities with a disproportionate exposure to liability. . . .

Finally, in this connection the Treaty provisions of Article XII on assistance to the victims in case of serious danger should be mentioned:

If the damage caused by a space object presents a large-scale danger to human life or seriously interferes with the living conditions of the population or the functioning of vital centers, the States Parties, and in particular the launching State, shall examine the possibility of rendering appropriate and rapid assistance to the State which has suffered the damage when it so requests. However, nothing in this article shall affect the rights or obligations of the States Parties under this Convention.

### 3. *Limits to Compensation of Damage*

The Convention does not contain provisions on the limit of compensation for damage caused by space objects such as those included in the original drafts of Hungary and the United States.

The principle of limitation was justified by Zhukov,<sup>31</sup> and with certain reservations by Rubanov.<sup>32</sup>

Later, the Hungarians eliminated the limitation clause from their draft. The Soviet representative Mr. A. S. Piradov justified this change as follows:<sup>33</sup>

The Soviet Union and other socialist countries also pronounced themselves in opposition to any limitation of liability. Such a position is legitimate and just. The U.S.A., in this case, has approached the solution of this problem from its particular imperialist interests. Taking into consideration the fact that frequently in the U.S.A. a particularly negligent preparation is made for the launching of outer space objects, the diplomats of that country wanted to guarantee the U.S.A. by agreement in advance [as safe] from a possible payment of a huge amount in a case of accident caused by an American outer space object.

### 4. *Law for the Assessment of Damage*

During the long deliberations that took place on assessment of damage, several proposals were made on determining responsibility; these concerned: the national law of the victim, the law of the place of the damage, the law of the respondent state and international law.

<sup>31</sup> The representatives of the U.S.S.R. and the other Socialist countries in the Judicial Subcommittee pointed out the desirability of fixing, in the convention on damage, a maximum limit of liability in form of an ascertained sum.—G. P. Zhukov, *Space Law*, Moscow, 1969, p. 146.

<sup>32</sup> Rubanov, *Tendentsil*, *supra* note 21, p. 230. However, on the other hand, the liability for damage caused by space objects arises in connection with very specific activities of states. Therefore, there are theoretical grounds for establishing, by agreement, the principle of a limit to that problem. Such exceptions already were established by some multilateral conventions, for instance, the Vienna Convention on Civil Liability for Nuclear Damage.

<sup>33</sup> Piradov, *Tendentsil*, *supra* note 5, p. 22.



Three original proposals were made by Hungary, the United States and Belgium, and later by others. They were summarized by Mr. Vranken of Belgium as follows.<sup>34</sup>

... the Hungarian proposal, which had referred to the law of the respondent State; the United States proposal, which had mentioned the principles of international law, justice and equity; and the Belgian proposal, which had referred in the first instance to the national law of the person injured and, secondly, to international law.

Subsequently, two new draft conventions had been submitted: an Indian text, which referred to the concept of agreement on the applicable law and, in the absence of such agreement, the principles of international law, taking into consideration the law of the claimant State and, where appropriate, the law of the respondent State, but according priority to international law; and an Italian text, which referred the matter to international law in the event of the parties being unable to agree on the application of the principle of equity or of any particular national law.

In 1969 and 1970 the Sub-Committee had agreed that reference must first be made to international law and that the applicable law could be that acceptable to the parties.

In a detailed analysis of the proposals concerning the establishment of the law for the assessment of damage caused by outer space objects, Rubanov tried to justify the Hungarian position, supported by the Soviet representatives, during the debates by the following considerations:<sup>35</sup>

On the VII and VIII sessions of the Legal Subcommittee, two basic formulas of rattachement were discussed. First, renvoi to the law of the country which launched the outer space object. This formula is used in the Hungarian draft. And the second—the renvoi to the law of the country on whose territory the damage was caused.

Several states favored the last solution.

It was pointed out that the principle *lex loci delicti commissi* is traditional to the private international law of many states. It seems, however, that the renvoi to traditionalism is not a valid argument. The Convention was faced with a problem having no parallel in legal history: it was necessary to establish a norm applicable not only on a global scale, but also in outer space. The endeavor to solve the problems arising in this connection with the help of formulas going back to the early middle ages would mean to choose means which are clearly inadequate for the purpose. We will make it clear only by some examples. Let us imagine a case when the outer space object of one state caused the damage to the outer space object of the other state or to the persons or property on board. As we have seen, this situation is covered by the Convention. If the Convention, however, would contain the renvoi to the law of the state on whose territory the damage was caused, then in this case it would be some kind of "renvoi to nowhere." One further example: The outer space object caused damage to the ship, which is on the high seas, or to an airplane in flight over the high seas. Here the situation repeats itself. On the contrary, if the Convention had chosen renvoi to the law of the state which launched the outer space object, all these difficulties would not arise.

Somebody tried to describe renvoi to the law of the launching state as a "fantastic solution." Such assertions are unfounded. The Convention must regulate, in the first place, all cases in which the launching of the outer space object is made on the territory of one state and the damaging result occurs on the territory of another state. An analogical situation is well known in private international law. There it raises the problem on the qualification of the concept of the "place of the commission of the delict." Let us consider the case when a physical (or legal) person committed a damaging act on the territory of one state, and that its result occurred on the territory of another state. The case is tried by courts of the country, whose private international law contains the renvoi to the law of the state on the territory of which the delict was committed. In such case, the problem arises as to the territory of which of the two states the place of the commission of the delict is to be referred.

<sup>34</sup> U.N. Doc. A/AC.105/C2/SR (August 25, 1971), p. 71.

<sup>35</sup> Rubanov, *Tendentsii*, *supra* note 21, p. 217-18.



The legislation and the court practice of different countries examine this problem in different ways. The majority considers that the place of the commission of the delict is the place where the act was done, but not the place where the result occurs. Therefore, the courts of these countries apply the law of that state where the act was done. Such is the position of the civil codes of Italy (Art. 25), Greece (Art. 26) as well as the court practice of France. A minority takes the opposite position. For instance, the USA considers that the place of the commission of the delict is there where a damaging result arises . . . .

If we apply the position of the majority, namely accept the *renvoi* to the law in effect at the place where the delict was perpetrated and simultaneously maintain that, whenever the launching of an outer space object [takes place]; the territory of the state where the launching is made constitutes such place, the same results would be achieved as in the case of *renvoi* to the law of the launching state. In other words, the position of the Hungarian draft has solid confirmation in private international law. In the Hungarian draft this approach is expressed in a more simple legal form.

As to allegations that the launching States may issue special laws regulating the amount of the compensation for the damage caused by an outer space object launched by those States which would limit the amount of the compensation as compared with the general rules of the civil laws of that State, Rubanov observed: <sup>36</sup>

It is necessary to point out that a similar objection may be raised not only against the *renvoi* to the law of the launching state, but also against *renvoi* to the law of the state on the territory of which the damage was caused. It is safe to say that the states might issue special laws on the amount of the compensation of outer space damage, with the only difference that in this case the amount of the compensation will appear to be increased.

For various reasons, none of the original proposals was adopted. Finally, a compromise was reached, using the proposal of the United States as a basis. Consequently, Article XII of the Convention reads as follows:

The compensation which the launching state shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred.

Olivier Deleau makes the following observations on this formula: <sup>37</sup>

This formula, as vague and ambitious as one would wish it to be, is the result of a compromise between several proposals, some favoring the law of the victims, others favoring the law of the place of the damage; the Soviets for their part, wanted to accept only the law of the responsible State.

The first proposition had the inconvenience of involving a multiplicity of actions in the case of the plurality of victims of different nationalities. The second, supported by the French delegation, had the advantage of being the most logical one and one which offered the victims indemnification proceedings which are most favorable to them in case of damage that occurred on the Earth, but was difficult to apply in case of an airplane in flight and especially to [apply in cases involving] an outer space object. Insofar as the Soviet proposal is concerned, it was completely unacceptable to claimants other than Soviet, because of its exorbitant, not to say shocking, character.

<sup>36</sup> *Ibid.*, p. 218.

<sup>37</sup> O. Deleau. "La Convention sur la responsabilité internationale pour les dommages causés par des objets spatiaux." *In* *Annuaire français de droit international*. v. 17, 1971. Paris, 1972. p. 882.

In a paper entitled "Further Remarks on Space Liability," Fifteenth Colloquium, p. 140, S. M. Williams points out that:

The Soviet, Romanian and Hungarian representatives considered that equity and justice and the principles of international law, if they existed, could hardly be considered precise enough to be made the point of reference, and to invoke international law was simply to defer the whole question.

See also the observations of Rubanov, *Tendentsil*, *supra* note 21, p. 221, concerning references to the national systems of the parties concerned for the establishment of damages:

From the accepted principle by the Legal Subcommittee that the amount of the compensation is established in accordance with the international law, it follows that both national systems must be taken into consideration, or both be eliminated. In any event, we feel that taking into account one of these systems would be in contradiction to this principle.

The adopted formula leaves the door open to all [kinds of] difficulties. Each will interpret it in his own way; the Westerners may say that for them international law admits indirect and moral damage which is not recognized by the Soviets. Perhaps the settlement commissions that will apply it will succeed in finding a solution half-way between the Socialist judicial system and the Western judicial system. Perhaps, also, when it becomes necessary to refer to the concepts of justice and equity, the commissions can take into account, as desired by France, social and national norms of the victim, and in doing this, refer in a certain measure to *lex fori*.

The provisions of Article XII are not, on the other hand, as precise as would have been preferred by the Westerners who pleaded for the principle of a "full and complete" reparation as compensation for the inconveniences [resulting from] the absence of a reference to a precise, applicable law. The Soviets were adamantly opposed to the inclusion of this notion for fear, no doubt, of seeing Westerners prevail in demanding of the Socialist States reparation of moral and indirect damage. What is more, it was possible, after a compromise, to agree to recognize in the preamble, as we have seen, the necessity to reassure the prompt payment to the victims of a total and equitable compensation.

## B. PARTIES TO THE LIABILITY PROCEEDINGS

### 1. Claimant Party

According to the provisions of Article VIII of the Convention, the following States may introduce claims for compensation for damage caused:

1. A State which suffers damage, or whose natural or juridical persons suffer damage, may present to a launching State a claim for compensation for such damage.

2. If the State of nationality has not presented a claim, another State may, in respect of damage sustained in its territory by any natural or juridical persons, present a claim to a launching State.

3. If neither the State of nationality nor the State in whose territory the damage was sustained has presented a claim or notified its intention of presenting a claim, another State may, in respect of damage sustained by its permanent residents, present a claim to a launching State.

Thus, the victims, natural or juridical persons, have no right to claim damages directly. The claim may be introduced only by a State under conditions established in Article VIII.

### 2. Respondent Parties

(a) *States*.—The liability rests with the launching State, and the definition of the launching State is given in Article I of the Convention. Whenever two or more States jointly launch a space object, they are jointly and severally liable for the damage caused. The claims may be filed against any participating State or against all of them. If a State has paid the compensation, it has the right of subrogation. The participant States may make the agreement regarding the apportioning among themselves of financial obligations (Art. V, 1 and 2). In paragraph 3 of Article V, the stipulation is added that a State from whose territory or facility a space object is launched shall be regarded as a participant in a joint launching.

(b) *International Intergovernmental Organizations*.—From the very beginning of the discussions concerning the activities of international organizations in outer space, Soviet writers and official representatives attempted to exclude them from consideration at all, arguing that the exploration and use of outer space must be carried out only



by States. After long discussions, the Soviets finally agreed to include international intergovernmental organizations in the Liability Convention under the particular conditions stipulated in Article XXII. The international intergovernmental organizations may be liable for damage when three conditions established in that Article have been fulfilled: a) the organization declares its acceptance of the rights and obligations provided for in the Convention on Liability, b) a majority of the member States of the organization are parties to the Liability Convention, and c) a majority of the member States of the organization are parties to the Space Treaty of 1967.

The liability of an international intergovernmental organization does not relieve the member States of that organization from liability: this organization and the member States of that organization are jointly and severally liable—provided that the claim shall be at first presented to that organization—and when the organization has not paid within a period of six months for any sum agreed upon or determined to be due as compensation, the claimant State may invoke the liability therefor of the member States of that organization which are parties to the Convention on Liability.

#### C. THE PROCEDURE FOR THE SETTLEMENT OF COMPENSATION TO THE VICTIMS OF DAMAGE

In addition to the problem concerning the laws applicable to the assessment of damages, the procedure for the settlement of claims for damages caused by space objects was another crucial point.

The United States draft provided an arbitration procedure which would lead to a binding decision. The Hungarian draft, on the other hand, provided in its Article 11 for a two-stage procedure: a first stage in which the claims commission would be established on the basis of parity, and a second stage providing for any international method of settlement, including arbitration acceptable to the parties.

In general, Western States insisted on the establishment of mandatory arbitration; the Soviets were categorically opposed to such a procedure.<sup>38</sup> Finally, the following rules concerning the procedural settlement of claims were adopted:

The claim must first be presented to the launching State through diplomatic channels. The presentation of a claim does not require the prior exhaustion of any local remedies which may be available. If no settlement of a claim is arrived at through diplomatic channels within one year from the date on which the claimant State notifies the launching State, the parties concerned must establish a claims commission at the request of either party. The claims commission is composed of three members: one appointed by the claimant State, one by the launching State, and the third chosen by both parties jointly. Each party must make its appointment within two months of the request for the establishment of the claims commission. If no agreement is reached on the choice of the chairman within four months of the request for the establishment of the claims commission, either party

<sup>38</sup> On the World Court and the principle of judicial settlement on disputes, and indeed on the principle of the third-party arbitration of disputes in general, the Soviet attitude has been consistently negative. Soviet municipal internal law denies any general right of judicial legislation or judicial policymaking.

E. McWhinney, "Ideological Conflict and the Special Soviet Approach to International Law," *The University of Toledo Law Review*, 1971, v. 3, p. 220.



may request the Secretary-General of the United Nations to appoint the chairman within a further period of two months.

If one of the parties does not make its appointment within the stipulated period, the Chairman shall, at the request of the other party, constitute a single-member Claims Commission (Art. XVI).

Olivier Deleau pointed out the following in that regard:<sup>39</sup>

This process is far from that what the Westerners, maintaining their traditional position, estimated as necessary to guarantee the application of the Convention and compensation of victims. It does not provide in effect, a procedure for arbitration in case of differences over the interpretation of the Convention and limits itself to the possibility of initiating, at the request of one of the interested parties, the establishment of a commission for the settlement of claims which were not settled through diplomatic negotiations. The mandate of the commission is strictly limited by Article XVIII which stipulates that the commission shall decide the merits of the claim for compensation and determine the amount of compensation payable, if any. In addition, according to Article XIX, paragraph 2, the decision does not have a final and mandatory character unless the parties so agree; in the contrary case it is simply a final and recommendatory award, to which the parties shall give consideration.

Counter-balancing these weaknesses, one should note that, contrary to their tradition of constant application of the parity procedures, the Soviets accepted the principle of the three-party commission and even a system—rather ingenious and apparently new—according to which the president appointed by the Secretary General of the United Nations, upon the default of the parties to agree, may decide as a single member Commission if one of the parties does not proceed within the fixed time limit, to designate its member. Furthermore, the USSR accepted the idea of publication of the decision or sentence.

If the system is not very satisfactory from the legal point of view, it must be recognized that a decision, even a non-constraining one, on the merits of the claim for damages and the establishment of the sum of the equitable compensation, taken by a commission on which a third party arbitrator is sitting and which is widely publicized (the decision will be especially communicated to the Secretary General of the United Nations) will have in fact such a moral force that it appears difficult for a space power to disregard it.

Thus the Convention established a new type of procedure; single-member claims commissions, i.e., a body consisting of one man who acts alone and publishes his findings. This procedure is something more than conciliation and similar to a legal advisory opinion of the International Court of Justice.

#### D. SOME CONCLUDING REMARKS

The Liability Convention was praised especially by the Hungarian Istvan Herczeg who pointed out the following particular features of the Convention on Liability:<sup>40</sup>

As witnesses of, and to some extent even participants in, the ten-years' history of the birth of the Convention, we are fully aware of the by no means negligible legal and political difficulties with which the makers of the Convention had to cope. We should in fact be glad that [it was] not the skeptics [who] were right. In fact notwithstanding the difficulties, the Convention was at last born, and although we have to deplore many of its shortcomings, its epoch-making significance from the point of view of international law cannot be denied.

In my opinion its epoch-making importance in international law can be summed up under five headings, in the sequence of priority:

(1) In point of fact the Convention has raised a civil law liability to the level of state liability, and by this it has expanded the scope of international liability of the states considerably (Art. I).

<sup>39</sup> O. Deleau, *supra* note 37, p. 883.

<sup>40</sup> I. Herczeg, "Some Problems of the Convention on Liability Arising from Space Activities." In *Proceedings of the Fifteenth Colloquium on the Law of Outer Space*, October 8-15, 1971. Vienna, Austria. Davis, The University of California School of Law, 1972 [hereafter cited as *Fifteenth Colloquium*], p. 111.

(2) The Convention has introduced the institution of the absolute liability of the states, an institution so far unknown in international law (Art. II).

(3) It has introduced the institution of the joint and several liability of the states, another institution so far unknown in international practice (Arts. IV and V).

(4) The Convention created a new form of international arbitration by setting up the so-called "Claims Commission," of three members or a single only (Arts. XIV to XX).

(5) International intergovernmental organizations may join the Convention by a way of a declaration (Art. XX).

### III. REGISTRATION OF OBJECTS LAUNCHED INTO OUTER SPACE

The question of the registration of objects launched into outer space was raised in the United Nations as early as 1959. At that time, the number of satellites orbiting the Earth was very small. The Ad Hoc Committee on the Peaceful Uses of Outer Space in its report to the General Assembly<sup>41</sup> stressed the desirability of establishing a system of registration and identification of space vehicles, and especially mentioned that in order to be able readily to identify space objects in the event of their return to Earth, space vehicles should bear special markings.

The next important step was taken by the Sixteenth General Assembly of the United Nations when it adopted Resolution 1721 B (XVI) of December 20, 1961. This resolution called on:<sup>42</sup>

States launching objects into orbit or beyond to furnish information promptly to the Committee on the Peaceful Uses of Outer Space, through the Secretary-General, for the registration of launchings, and requested the Secretary-General to maintain a public registry of the information furnished.

This resolution was the result of the initiative of the United States which proposed the establishment of an international registry to be maintained by the Secretary-General, which would consist of information voluntarily submitted by the individual State members and would provide an international census of orbiting space vehicles.

Such a registry was established and maintained by the Secretary-General of the U.N., and the United States and the Soviet Union supplied information for the first time in 1962. Later data were supplied by other countries also: France, Italy, Australia, and Japan. Data supplied on a voluntary basis were not identical in form and content. However, the data submitted by the Soviet Union and the United States to a great extent were the same. Furthermore, as Maiorskii observed, "to date, in general no serious grounds for doubt concerning the rationality and adequacy of the present system of the registration of the outer space objects have arisen."<sup>43</sup>

There was sharp criticism of the voluntary registration system, however, and voices for the establishment of a mandatory international registration system became increasingly insistent. In a collective work published by the Academy of Sciences of the U.S.S.R., G. P. Zhukov recognized the expediency of the revision of the practice at that time:<sup>44</sup>

<sup>41</sup> U.N. Doc. General Assembly, 14th Session, A/3131.

<sup>42</sup> U.N. Doc. A/AC.105/101, p. 17, under No. 23.

<sup>43</sup> B. G. Maiorskii. "Registratsia kosmicheskikh ob'ektov" (Registration of Outer Space Objects). In *Mezhd. kos. pr.*, *supra* note 1, p. 132.

<sup>44</sup> *Tendentsii*, *supra* note 5, p. 89.



With the increase in the number of countries which launch objects into outer space, the practice of furnishing information to the United Nations for registration will become increasingly divergent. Therefore one cannot rule out that in the future it will become necessary to work out some sort of guidebook which would generalize the existing practice and recommend to States some general principles to follow.

Thus, the Soviets considered that the future regime of the registration would be based on the improvement and developing of the current practice.

The first attempt to establish new rules on international registration was made by France in 1968 when it proposed a Draft Convention Concerning the Registration of Objects Launched into Space for the Exploration and Use of Outer Space.<sup>45</sup> This Draft consisted of a preamble and six substantive articles. According to Article I of the Draft, any object launched into space would be registered by entry in a register kept by a service under the supervision of one or more States parties to the Convention. In Articles II and III, the minimum data which would be included in the registry were established.

During the deliberations in 1969, the Soviet delegation proposed to study the Draft, but at the same time, it stated that, in its opinion, then current practical needs of registration were satisfied by the system in force at the time.<sup>46</sup>

After the deliberations, the Legal Subcommittee adopted a resolution in which it recommended to the Outer Space Committee that it invite the Scientific and Technical Subcommittee to study the technical aspects of the registration. However, the conclusions of the Scientific and Technical Subcommittee did not receive unanimous approval in the 1970 session.<sup>47</sup>

The discussions on the problem of registration were renewed in 1972 when Canada first introduced its draft on April 17 and later after a consultation between France and Canada, their joint draft was introduced on April 24, 1972.<sup>48</sup>

The joint Franco-Canadian draft was submitted to the Working Group, which prepared a draft consisting of a preamble and nine substantive articles. But again, not all members could agree on certain draft provisions, and some of these provisions were therefore placed in square brackets.

The main difficulties concerning the registration were pointed out by Nozari as follows:<sup>49</sup>

<sup>45</sup> U.N. Doc. A/AC.105/C.2/L.45 (June 18, 1968).

<sup>46</sup> Mezhd. kos. pr., *supra* note 1, p. 134.

<sup>47</sup> F. Nozari, *The Law of Outer Space*, Stockholm, P.A. Norsted and Söners förlag, 1973, p. 131.

The Subcommittee identified four principal means of identifying space objects: (a) special markings; (b) structure, components and materials; (c) frequencies of transmitters; and (d) information on flight trajectories. The Subcommittee then concluded that: (1) No significant difficulty is to be expected in identifying space objects orbiting or surviving re-entry; (2) For reasons of economy and safety, a marking system to survive re-entry is not considered technically practical at the present time; (3) Both basic capabilities for trajectory determinations and material analysis required to identify orbiting or re-entering space objects, are extremely complex and expensive and should not be duplicated on an international scale; (4) The basic resources commended to States and the U.N. Secretary-General in connexion with the identification of space objects orbiting or surviving re-entry lie in several complementary national capabilities, particularly those of launching States; and (5) It is advisable to retain a system for the registration of space objects as prescribed in General Assembly Resolution 1721 B, as an orderly record, while recognizing that such a registry cannot in itself be of material assistance in identifying returned objects.

<sup>48</sup> U.N. Doc. A/AC.105/C.2/L.86 (March 27, 1973). The Canadian draft was never officially discussed because in the opinion of Maiorskii:

In the draft unjustifiably great stress was placed on the identification of outer space objects, which clearly prevailed over all other goals of the registration. In addition, the draft was overloaded by the requirements on the application for the entry into the registry of data of a complicated technical character, the preservation and processing of which—even with the application of the most recent methods—require considerable efforts and financial outlays.

Mezhd. kos. pr., *supra* note 43, p. 136.

<sup>49</sup> Nozari, *supra* note 47, p. 136.



Certain delegations in the Legal Subcommittee entertained substantive reservations on whether the preparation of the draft convention on registration of objects launched into outer space would in fact serve a useful purpose in the identification of space objects, and they referred to technical problems which would be raised by the treaty requiring the marking of space objects. While understanding the importance other delegations attached to the ability to identify fragments of man-made space objects that might return to Earth, they did not believe that marking would ensure identification, and reference was made in this connection to the conclusions reached on the matter by the Scientific and Technical Subcommittee in 1970.

On the other hand, a number of delegations believed that a draft convention on registration was indeed necessary and important.

The Soviet delegation at the eleventh session of the Legal Subcommittee pointed out the complexity of the problem and proposed to discuss only the general principles of the Franco-Canadian draft:<sup>50</sup>

As the work of the eleventh session of the Legal Subcommittee has shown, the main difficulties arose for delegations with respect to the provisions of the Franco-Canadian draft concerning the definition of the outer space object, the content of the registering number, marking of the outer space objects, the scope of the data submitted to the Secretary-General of the UN, and the connection of the registration of the outer space objects with their identification.

Before the opening of the twelfth session of the Legal Subcommittee, which lasted from March 26 to April 20, 1973, the United States submitted its own draft of the convention on registration on March 19, 1973.<sup>51</sup> The representative of the United States, Mr. Herbert Reis, after having observed that the joint draft of Canada and France "goes beyond what would be appropriate in accomplishing the central purpose of a registration agreement," indicated the following general considerations pertaining to the United States proposal:<sup>52</sup>

The United States considers that the purpose should be to implement the Outer Space Liability Convention of 1971. We understand the concern that a state, although a party to the Liability Convention, may be unable to make use of the fair-compensation provisions of that convention if a fragment has landed on its territory and caused damage but it cannot identify the state that launched the object with which the fragment is associated. . . .

In our view, an international agreement on registration should, first, create a cost-effective and practicable international census of vehicles in orbit and, second, offer a reasonably reliable assurance that states possessing tracking and analytical facilities will assist in identifying fragments in connection with possible damage. I take up these aspects in turn.

First, with regard to establishing of an international census of orbiting vehicles. I think it appropriate to recall that the idea of a centralized international registry of such vehicles came about as the result of a suggestion of the United States some 10 years ago. . . .

We have now had 12 years of practice under this resolution . . . .

These dozen years of experience have now led us to agree with others that the voluntary international registry has been useful but could be improved by the adoption of a common or standardized reporting format to be used by all reporting states. We have also concluded, as I indicated above, that the improvement of the system through the means of an international agreement is appropriate and desirable.

Second, I turn to the issue of assistance to states to identify fragments of man-made objects that return to earth and cause damage. Theoretically one could imagine the possibility of establishing an international center that would have a capability of identifying fragments. However, this would involve very large costs, and no one has proposed that this would be a useful way for the members of the international community to spend money.

There is another reason why the establishment of complex international identification machinery would be inappropriate, and that is because the occasion for

<sup>50</sup> Mezhd. kos. pr., *supra* note 1, p. 138.

<sup>51</sup> U.N. Doc. A/AC.105/C.2/L. 85 (March 19, 1973).

<sup>52</sup> The Department of State Bulletin, v. 68, No. 1770, May 28, 1973.

its use would be so small. Manmade fragments do not often survive reentry of the earth's atmosphere and the likelihood of damage when they do survive reentry is far smaller.

Consequently, along with other members of the Outer Space Committee, we have turned our attention to alternative possibilities of providing assurance that states will be able to request and receive identification assistance from states and international organizations that have or may develop significant capabilities in this field. . . .

Indeed, Mr. Chairman, this kind of offer of assistance represents perhaps the single most important contribution to implementing the Liability Convention where there is doubt as to the identity of the launching authority. Today the United States takes the additional and significant step of offering to undertake a treaty-based obligation to grant such assistance in appropriate cases.

A note of caution is necessary, however. Fulfilling a request for identification assistance will involve the allocation of human, technical, and economic resources on the part of the state whose help has been requested. While the United States would be ready to offer assistance where damage has occurred, we would not be prepared to do so without a concrete indication of need. For this reason, as you will see, our offer of assistance is limited to cases of damage.

The United States proposal was favorably received by the Soviet Union, as pointed out by Maiorskii:<sup>53</sup>

In such a way, the basic virtue of the American draft is that it has, with the exception of some details, generalized the established procedure of the registration of outer space objects rather well and does not require that the states undertake new obligations which would go far beyond the scope of the registration already carried out on a voluntary basis.

In particular, the draft does not foresee a mandatory marking of outer space objects or mandatory assignment of a registry number and indicates the necessity of the identification of only those objects which have caused damage.

France and Canada submitted a revised draft. The Working Group organized in the twelfth session of the Legal Subcommittee was charged with the task of preparing a new draft taking into consideration all proposals submitted to the Subcommittee. A new draft was prepared consisting of a preamble and 10 articles. The Soviet delegation favorably evaluated the draft and declared that it was ready to accept it as the basis of the future convention if a compromise could be reached on some controversial provisions. France continued to insist that in the text of the convention there should be included mandatory marking of outer space vehicles, as well as provisions on the revision of the convention. With respect to mandatory marking, the Soviet attitude was negative:<sup>54</sup>

The Soviet delegation indicated that uniform effective marking of outer space objects is connected with great technical difficulties and at the present time does not seem to be practically possible. In view of the above-mentioned, the U.S.S.R. representative, as well as many members of the Subcommittee, did not object to including provisions on facultative markings which would be carried out at the discretion of the launching State.

Thus, the mandatory marking became the main issue of dissension along with the yet unsolved problem of the convention review clause. The first problem (mandatory marking) was not solved at the sixteenth session of the Committee held June 25–July 6, 1973. However, agreement was reached on the second issue, namely, the procedure for the review of the convention was approved. The agreement provided that 5 years after the entrance into force of the convention, a con-

<sup>53</sup> Mezhd. kos. pr., *supra* note 1, p. 139.

<sup>54</sup> *Ibid.*, p. 141. See also the statement of H. Reis, the United States representative:

The United States delegation did not believe that any system of marking that would have utility with regard to identification or liability or in any other context was currently available or in prospect. For that reason, it had agreed to the inclusion of a provision in the convention requiring a State having advanced data acquisition capabilities to provide assistance, upon request, to a party suffering damage by an object which it could not identify.

U.N. Doc. A/AC.105/C.2/SR. 205 (August 11, 1973), p. 113;



ference of the States parties to the convention for the discussion of the effectiveness of the convention may be convened at the request of one-third of the States parties to the convention and with the consent of the majority of such States.<sup>55</sup>

Finally, at the end of 1974, a compromise was reached, and the Convention on the Registration of Objects Launched into Outer Space was approved on November 12, 1974, and opened for signature on January 14, 1975. It consists of a preamble and 12 articles.

As was mentioned above, the draft of the United States limited the purpose of the registration to serving as the means for "the identification of the launching State of a space object which has caused damage." In the final text, this purpose was described in more general terms: to provide for States parties additional means and procedures to assist in the identification of space objects.

The Convention on Registration provides for double registration of space objects: on the national and on the international level.

To avoid any controversy, the Convention contains definitions of the terms "space object," "launching State," and "State of registry." The term "space object" includes component parts of a space object and its launch vehicle and parts thereof. "Launching State" is not only the State which launches or procures the launching, but also the State from whose territory or facility a space object is launched (Art. I of the Convention). These definitions correspond to those in the Liability Convention: Article I (d) defining "space object"; and Article I (c) defining "launching State."

Each launching State is bound to maintain, either individually or jointly with other launching States, a register of space objects it has launched. An entry may be made for each space object only once. The Secretary-General of the United Nations must be informed of the establishment or termination of such registers, as well as of every space object launched into Earth orbit or beyond. However, the State of registry is free to determine the contents of each registry and its maintenance conditions (Art. II). Likewise, the launching State has to furnish to the Secretary-General a set of specified data concerning each registered space object (Art. IV). This information must also include "an appropriate designator of the space object or its registration number" (Art. IV, par. 1 (b)). However, this obligation is subject to the conditions established in Article V:

Whenever a space object launched into earth orbit or beyond is marked with the designator or registration number referred to in article IV, paragraph 1 (b), or both, the State of registry shall notify the Secretary-General of this fact when submitting the information regarding the space object in accordance with article IV. In such case, the Secretary-General of the United Nations shall record this notification in the Register.

Thus, the marking problem was solved in a facultative way.

Article VI deals with the assistance of the other States to the claimant State to identify a space object:

Where the application of the provisions of this Convention has not enabled a State Party to identify a space object which has caused damage to it or to any of its natural or juridical persons, or which may be of a hazardous or deleterious nature, other States Parties, including in particular States possessing space monitoring and tracking facilities, shall respond to the greatest extent feasible to a request by that State Party, or transmitted through the Secretary-General on its behalf, for assistance under equitable and reasonable conditions in the

<sup>55</sup> *Ibid.*, p. 124, note 53, citing U.N. Doc. A/9020, p. 54.



identification of the object. A State Party making such a request shall, to the greatest extent feasible, submit information as to the time, nature and circumstances of the events giving rise to the request. Arrangements under which such assistance shall be rendered shall be the subject of agreement between the parties concerned.

In 1972 the United States expressed its willingness to assist any party to the Outer Space Liability Convention that requests its help in identifying a fragment in connection with possible damage. This now has become a treaty-based obligation under provisions of Article VI.

#### IV. THE "INTERKOSMOS" PROGRAM

In the most recent Soviet collective publication, V. S. Vereshchetin, a leading Soviet authority on outer space law, supplied the basic information and evaluation of the Interkosmos organization and its functioning in the chapter "International Cooperation of the USSR in the Exploration and Uses of Outer Space (Legal Aspects)." <sup>56</sup> The following survey is based on this outline.

As early as 1965, the Soviet Government initiated an exchange of letters between the heads of governments of various socialist countries regarding the pooling of efforts in the exploration and uses of outer space for peaceful purposes. Representatives of Bulgaria, Cuba, Czechoslovakia, Hungary, Mongolia, Poland, Romania and the Union of Soviet Socialist Republics thereupon held two conferences in Moscow, in November 1965 and April 1967, to discuss the contents, forms, and directions of collaboration concerning outer space.

Two documents were drafted and approved by the governments of the participating countries. The first was entitled "Report on the Conference of Representatives of Socialist Countries on the Exploration and Uses of Outer Space for Peaceful Purposes, of November 20, 1965." The second document was the "Report of April 13, 1967, of the Conference of Experts-Representatives of Socialist Countries on the Exploration and Uses of Outer Space for Peaceful Purposes."

The second document included a general coordinated program of collaboration regarding exploration of the physical characteristics of outer space, outer space communications, outer space meteorology, and outer space biology and medicine. This program was to receive in 1970, at the conference of directors of the national coordination organs, the official name "Interkosmos." The reports outlined the organizational forms of the above-mentioned collaboration. Each of the nine countries undertook to create a national coordinating organ responsible for the carrying out of the agreed upon program, as well as of the bilateral and multilateral agreements on the individual projects and subjects, which were to be concluded within the framework of this program. Conferences of the directors of the national coordinating organs, convened every year, were to adopt recommendations and decisions, defining more precisely and developing the programs of joint works and the organizational and other practical questions pertaining to collaboration.

The implementation of the program and the elaboration of new recommendations take place in the framework of permanently operating mixed working groups consisting of scientists and specialists

<sup>56</sup> Mezhd. kos. pr., *supra* note 1, p. 219-255. See also his report "The 'Interkosmos' Program in the Light of Main Principles of Space Law." Fifteenth Colloquium, p. 233-238.

of the participating countries. In their activities, the working groups are guided by rules approved at the conference of the directors of the national coordinating organs on June 14, 1968, in Moscow. The conferences of working groups take place as needed, but at least once a year, with each of the collaborating countries taking its turn.

The working groups may adopt recommendations and decisions; those of a scientific-technical nature enter into force immediately for countries who have spoken out in favor of their adoption. The decisions and recommendations on organizational and financial questions require the approval by the national coordinating organs in accordance with the procedure established in each particular country.

Therefore, Vereshchetin concludes, the legal basis of the activities under the "Interkosmos" program rests on an agreement reached by means of an exchange of letters between heads of government; two reports of representatives of the collaborating countries, approved by the respective governments; and the Rules on the Permanently Active Mixed Working Groups adopted by the national coordinating organs.

Thus a definite international machinery which in conjunction with the national organs secures the successful implementation of the adopted program was created. It includes the national coordinating organs, established at the academies of science, the ministries for science and technology or other government agencies of individual countries, periodical conferences of the directors of national organs and the conferences of permanently active working groups for the establishment of guidelines for collaboration.

As pointed out by Vereshchetin, the "Interkosmos" project lacks the attributes of an intergovernmental organization such as an international secretariat and a common budget. Moreover, it is not based on a single intergovernmental constitutive act. In his opinion, therefore, at the present stage and from the point of view of international law, "Interkosmos" may not be considered an international intergovernmental organization in the strict meaning of this term. However, at the same time, the presence of a certain intergovernmental agreement on multilateral collaboration and the existence of an efficient international machinery securing this collaboration permit us to speak about "Interkosmos" as an international organization *sui generis*, which in some cases may appear on the international community scene as an integral entity.

Furthermore, Vereshchetin points out that the means of outer space rocket technology are provided by the Soviet Union to its partners free of charge. No common monetary fund to pay for the carrying out of the program is created. Every country finances those works of the program which are done by its scientific agencies: for instance, creating devices and equipment for satellites and exploratory rockets, the carrying out of scientific research works on coordinated subjects, etc. Vereshchetin also raised the question of whether the principles and norms of general outer space law are applicable also to the activity of States under the "Interkosmos" program, and he answers this question in the positive on the basis of his interpretation of outer space provisions in force.

Article XIII of the Outer Space Treaty states that the provisions of the Treaty shall apply to the activities of States "whether such activities are carried on by a single State, Party to Treaty, or jointly with



other States, including cases where they are carried on within the framework of international inter-governmental organizations." The words "including cases" provide a basis for the conclusion that the activity within the framework of international intergovernmental organizations is to be considered to be only one among the several forms of joint activity for which provision is made by the Treaty, and by no means the only form. Consequently, the multilateral collaboration within the framework of the "Interkosmos" program falls into the category of the "joint activity" mentioned in Article XIII of the Treaty, irrespective of the answer to the question of whether or not "Interkosmos" must be considered to be an international organization.

Joint activity is also mentioned in Articles V and XVII of the Convention on International Liability for Damage Caused by Outer Space Objects.

Any of the States participating in the "Interkosmos" program may become directly involved in legal relations with third States that are not participating in the program. Such a situation may arise, for instance, if an "Interkosmos" satellite causes damage to persons or property of a third State. In such a case, by virtue of Article V of the Convention, the States jointly effecting the launching are jointly and severally liable for the damage caused.

In the opinion of Vereshchetin, joint and several liability in the above case need not be borne by all States collaborating in the "Interkosmos" program, inasmuch as there exists no common money fund for the implementation of this program, but only by those among them who directly participated in the given individual launching.

Legal relations with third States may arise for any of the "Interkosmos" program participants in connection with Article VIII of the Outer Space Treaty which specifically states that ownership of objects launched into outer space, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth.

The Agreement on the Rescue of Astronauts (Art. V) provides the right of the State which has incurred expenses in fulfilling obligations to recover and return a foreign outer space object to claim compensation for these expenses from the State or international organization that has launched such object. In cases of a joint launching, the State which compensated for such expenses obviously must have the right of recourse against the remaining participants of the joint launching.

In some cases, "Interkosmos," as an international organization *sui generis*, may make an independent appearance in international relations. Article XI of the Outer Space Treaty calls for the desirability of informing "to the greatest extent feasible and practicable" the Secretary-General of the United Nations, as well as the public and the international scientific community, of the nature, conduct, locations, and results of activities in outer space, including those on the Moon and other celestial bodies. Thus, from this Article results the right of "Interkosmos" to be represented at the sessions of the U.N. Committee for the Peaceful Uses of Outer Space, COSPAR, International Astronautical Federation and other international scientific forums of both an intergovernmental and non-governmental nature.



In the opinion of Vereshchetin, the successful development of collaboration under the "Interkosmos" program proves the vitality of the adopted organizational forms, which secure flexibility in the implementation of the program and do not impose a financial burden on countries which for whatever reasons do not wish to participate in some outer space experiments. He summarizes the conclusions on the "Interkosmos" project as follows:<sup>57</sup>

1. The "Interkosmos" is a jointly elaborated and successfully carried out programme providing for the cooperation of nine Socialist countries in exploration and use of outer space. There exists a well-defined international machinery ensuring the implementation of this programme: annual sessions of the four permanent working groups of specialists, regular meetings of experts.

2. Due to the absence of a number of attributes common to international intergovernmental organizations the "Interkosmos" at the present stage is not an international governmental organization *stricto jure*. But the existence of a special international machinery, understanding between governments and domestic governmental organizations for implementation of this multilateral programme permits [one] to speak about the "Interkosmos" as an international organization *sui generis*. In certain cases it can participate on the international scene as a separate entity.

3. The activities under the "Interkosmos" programme fall under the category of *joint activities* provided for by the Space Treaty of 1967 (Article XIII) and the Convention on Liability for Damage (Articles V and XVII).

4. The main principles embodied in the Space Treaty of 1967 as well as certain rules of the Agreement on Rescue and the Convention on Liability can be fully applied to the activities of States under the "Interkosmos" programme.

5. In the course of the execution of the "Interkosmos" programme legal relations can emerge not only directly between the participating States but also between them and third States. In a number of cases this might require the conclusion of special agreements.

## V. INTERSPUTNIK

Among the new developments in the field of recent Soviet space law the coming into being of the international satellite communications organization called "Intersputnik" merits special attention.

By a letter dated August 5, 1968, representatives to the United Nations of eight socialist countries—Bulgaria, Cuba, Czechoslovakia, Hungary, Mongolia, Poland, Romania, and the Union of Soviet Socialist Republics—submitted to the Secretary-General of the United Nations a draft agreement to establish an international communications satellite system they named Intersputnik. On their request, this draft was circulated by the Secretary-General as a document of the United Nations Committee on the Peaceful Uses of Outer Space.<sup>58</sup>

The United Nations did not subsequently recommend the draft for adoption.<sup>59</sup> Despite this fact, the "Agreement Establishing the International System and Organization of Outer Space Communications 'Intersputnik'" was signed on November 15, 1971, in Moscow<sup>60</sup> by representatives of nine socialist countries—Bulgaria, Cuba, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, Romania and the U.S.S.R.<sup>61</sup>

<sup>57</sup> Vereshchetin, Fifteenth Colloquium, p. 237-238.

<sup>58</sup> U.N. Doc. A/AC.105/46 (August 9, 1968), p. 1-11.

<sup>59</sup> Nozari, *supra* note 47, p. 105.

<sup>60</sup> U.N. Doc. A/AC.105/PV.110, p. 12, quoted by Nozari, *ibid.*, note 24.

<sup>61</sup> The Russian text is reproduced in *Mnogostoronnee ekonomicheskoe sotrudnichestvo sotsialisticheskikh gosudarstv* (Multilateral Economic Cooperation of Socialist Countries), *Sbornik dokumentov* (Collection of Documents) [hereafter cited as *Mnogostoronnee*] P. A. Tokareva, ed., 2d ed., Moscow, Institute of State and Law of the USSR Academy of Sciences, 1972, p. 387-396. For an English translation, see Soviet Statutes and Decisions, v. 11, No. 3, Spring 1975, p. 323-336, reproduced in *Appendix C*.

In accordance with Article 21, the depositing of ratification documents by six countries would make the agreement effective. This condition was complied with, and, on July 12, 1972, the Intersputnik agreement entered into force.<sup>62</sup>

The goals of the organization are described in the preamble as follows:<sup>63</sup>

**The Contracting Parties:**

Recognizing the need to promote the strengthening and development of comprehensive economic, scientific, technical, cultural, and other relations through communications, as well as radio and television broadcasts through artificial earth satellites;

Recognizing the usefulness of cooperation in theoretical experimental research in the planning, creation, operation, and development of an international system of communications through artificial earth satellites;

In the interests of developing international cooperation on the basis of respect for the sovereignty and independence of states, equality, noninterference in internal affairs, as well as mutual assistance and mutual advantage.

#### A. THE STRUCTURE OF THE INTERSPUTNIK ORGANIZATION

The contracting parties mentioned above decided to create an international communications system through artificial Earth satellites, and for this purpose an international intergovernmental organization called Intersputnik was established. Membership in Intersputnik is open to all countries—not only to those who signed the agreement prior to December 31, 1972, but also to those who acceded to it in accordance with the provisions of Article 22. The headquarters of the organization is in Moscow.

The functions of the Intersputnik are: cooperation and coordination of efforts on planning, creation, operation, and development of the communication systems using artificial Earth satellites.

The international telecommunications system consists of two basic components: a space complex consisting of communications satellites with retranslators, airborne devices and ground control systems ensuring the normal function of satellites, and a ground complex, i.e., ground stations effecting liaison through artificial Earth satellites. The space complex is to be in the ownership of Intersputnik or leased from its members. Ground stations shall be the property of the countries or of recognized operational organizations.

The setting up of an outer space network was projected in three stages. The first stage included the carrying out of experimental works by members of the Intersputnik organization at their ground stations by using the communications channels gratuitously provided by the Soviet Union on its communications satellites. The duration of this stage was to extend to the end of 1973.<sup>64</sup> The second stage envisaged the use of communications channels based on communications satellites of the members of Intersputnik on a lease basis. And the third stage is the stage of commercial operation of the communications system with the use of a space complex which is the property of Intersputnik or which is leased from its members.

The particular features of these stages were described by Vereshchetin as follows:<sup>65</sup>

<sup>62</sup> Mnogostoronnee, *ibid.*, p. 395.

<sup>63</sup> *Ibid.*

<sup>64</sup> Compiler's note: The English translation as it appears in Appendix C does not appear to be precise.

<sup>65</sup> Mezhd. kos. pr., *supra* note 56, p. 227.



The difference between the second and the third stages consists in the following: in the second stage the members of the Intersputnik organization may consider for themselves economically more advantageous to use on the basis of lease only part of [the] communications channels on the already existing at that time [sic] satellites of the members of the organization, and not to lease or establish on their own means an outer space complex as a whole. The periods of time for the changeover to the third stage, in which the outer space complex as a whole belongs to the Intersputnik organization on the basis of ownership rights or lease, shall be determined by the members of the Intersputnik organization depending on economic expediency.

The launching of communications satellites owned by the Intersputnik organization and their operation in orbit shall be carried out on the basis of special agreements between the members of the Intersputnik organization.

Intersputnik is a juridical person (Article 8), and as such it has the right to conclude treaties, to acquire, lease, and alienate property, and to undertake procedural actions. In accordance with agreements with competent organs of states on whose territory it carries out its activities, Intersputnik has, on the territory of such countries, such legal capacity as is necessary for the attainment of its objectives and the implementation of its functions. However, this capacity is limited only to the scope of questions regulated by the Intersputnik agreement or agreements with its members. Outside of these agreements, the legislation of the States on whose territory the activities of the Intersputnik are carried out shall apply. The international and other agreements in the name of Intersputnik are concluded by the Director General by the mandate of the Council and within the framework of authorizations determined by the Council.

For the use of the outer space complex, Intersputnik distributes among its members the communications channels on the basis of their needs for channels. The plan for the distribution of channels must be approved by the Council. Intersputnik may lease to consumers other than members of the communications channels exceeding the joint needs of its members. The rates must be at the level of the average world rates in gold francs.

Following is the opinion of Vereshchetin in this matter:<sup>66</sup>

The agreement does not restrict the rights of its members to participate in the establishing and exploitation of other national or international outer space communications systems, leaving them in this respect full freedom. It also does not exclude the possibilities of interaction of the Intersputnik system itself with the other communications systems.

According to the provisions of Article VII of the Agreement, Intersputnik coordinates its activities with the International Telecommunications Union (ITU) and also cooperates with other organizations whose activities are related to the use of communications satellites in the technical sense as well as in matters of international regulations. The special mention of the ITU organization with which the Intersputnik is coordinating its activities is due, according to Vereshchetin, to the important role of this organization in the regulation of a series of technical questions pertaining to outer space communications, including the utilization of the frequencies spectrum.

#### B. ORGANS OF THE INTERSPUTNIK ORGANIZATION

The basic organs of the Intersputnik system are the Council and the Directorate. Furthermore, the creation of an auditing commission

<sup>66</sup> *Ibid.*, p. 230.



for the control of financial activities, as well as of other subsidiary organs at the discretion of the Council, is provided for.

The Council is the directing organ. It consists of representatives of all members of the organization, each member having only one vote. According to Vereshchetin, the principle "one country-one vote" guarantees the most democratic procedure to manage Intersputnik and corresponds to the international nature of its activities. Commenting on the international nature of its activities, Piradov, the U.S.S.R. representative on the Legal Subcommittee, remarked:<sup>67</sup>

The agreement was based on the principle of mutual assistance, which in turn reflected a broader principle of international law, the principle of socialist internationalism. The non-restricted nature of the Agreement demonstrated the readiness of its signatories to extend the principle of mutual assistance to co-operation with all countries, including non-socialist ones. It thus demonstrated the consistency of the socialist countries' policy regarding the development of equitable and mutually advantageous co-operation between States irrespective of their socio-political systems.

The jurisdiction of the Council, whose sessions convene at least once a year, embrace all questions of principle covered by the Agreement on the establishing of the international organization Intersputnik (Art. 12 p. 6).

Pursuant to Article 12, point 7, of the Intersputnik agreement, the Council strives to have all its decisions adopted unanimously. Where no unanimity can be achieved, decisions may be adopted if not less than two-thirds of its members vote for them. In the latter case, however, the decisions of the Council are not mandatory to such members who did not vote for them and in addition submitted their reservations in writing. These nonconsenting members may later express their accession to the decisions.

The first session of the Intersputnik Council took place in November 1972 in Moscow.

The Directorate is the permanent executive and administrative organ of Intersputnik. It consists of the Director General, elected by the Council for a term of four years with the right to be reelected; the Deputy Director General, who is elected for the same term, but without the right of being reelected; and of other required personnel who are selected on the basis of professional competence and a just geographical representation; the Directorate consists of nationals of the Intersputnik member countries. The Director General and his Deputy may not be nationals of the same country.

The functions of the Director General as the chief administrative official of the Intersputnik organization are clearly described in Article 13 of the Agreement, where it is especially stressed that in all his acts the Director General is responsible to the Council, and that the limits of his authority are determined by the Agreement and the decisions of the Council.

The Directorate of the Intersputnik organization is an international organ with clearly expressed executive functions. It is to the full extent accountable with respect to its activities to the Council, as the main managing organ of the Intersputnik.

<sup>67</sup> U.N. Doc. A/AC.105/C.2/SR.102 (August 13, 1973), p. 8.

## C. FINANCES

The fact that the establishment of this international communications system is to proceed in several stages determines also the order of the raising of funds of the Intersputnik organization. At first only a special annual budget was made up to cover the expense for the maintenance of the Directorate and the other administrative expenses. Only when the organizational needs for a lease or the creation of its own outer space complex is determined will a special charter capital of the organization be formed. The decision to create the charter capital and its amount is to be adopted by the contracting parties at the proposal of the Council and formalized by a special protocol. The amount of the share participation of the members in the formation of the charter capital is in proportion to the degree to which they use the communications channels. The charter capital may be increased by agreement.

Contributions to the charter capital are to cover the following expenditures of Intersputnik:

1. for research and experimental design work on the space complex and on ground stations;
2. for the designing, creation, acquisition or leasing of the space complex;
3. for the launching and orbiting of communications satellites belonging to the Organization;
4. for other purposes connected with the activity of the Organization.

After admission of new members or withdrawal from the Intersputnik Organization, the contributions of the remaining members shall change correspondingly. In cases in which a member's financial obligation is not fulfilled, the Council shall decide whether to suspend, in part or in full, that member's rights arising from membership in the organization.

The profit received from the operation of the communications systems is to be distributed among the members in proportion to their contributions. The currency in which the contributions are made are determined by the contracting parties upon the proposal of the Council. The Intersputnik organization charges 3% annual interest on sums not paid by the members within the established period.

## D. AMENDMENTS, DENUNCIATION, TERMINATION

According to the provisions of Article 24 of the Agreement, amendments to the Agreement shall take effect for each contracting party that adopts these amendments after they have been approved by two-thirds of the contracting parties. After it becomes effective, each amendment shall become binding on other contracting parties after they have adopted it.

Each contracting party may denounce the Agreement by sending a written notification to the depository government (the U.S.S.R.). The denunciation becomes effective at the end of the fiscal year. However, the party who denounced the Agreement shall pay all contributions set for it for the fiscal year in which the denunciation becomes effective. The amount of the compensation to the denouncing



party is determined by the Council in accordance with the contributions to the charter capital, with due regard to the depreciation and obsolescence of the fixed capital.

The Agreement may be terminated with the consent of all contracting parties. The procedure of the liquidation shall be established by the Council. The fixed capital shall be sold and the members of the organization shall be paid monetary compensation in accordance with their share participation in capital expenditures on the creation of the communications systems, with due regard to the depreciation and obsolescence of the fixed capital. Available working capital, with the exception of the part that is used to pay obligations of the organization, is distributed among members in proportion to the actual monetary contributions as of the day on which Intersputnik is liquidated.

#### E. PARTICULAR DIFFERENCES BETWEEN INTERSPUTNIK AND INTELSAT

In 1964, upon the initiative of the United States, another international system of cosmic communications by means of artificial Earth satellites—INTELSAT—was established, and its membership now includes a great number of States from all parts of the Earth. In 1971, there were signed in Washington, the so-called definitive arrangements on INTELSAT.

Vereshchetin indicated the following particular differences of the Intersputnik as compared to INTELSAT:<sup>63</sup>

1. In contradistinction to Intersputnik, which is open for accession to all countries of the world, only countries belonging to the International Telecommunications Union may be members of INTELSAT. This discriminatory measure was directed against a group of socialist countries that do not belong to the ITU.

2. The sovereign equality of members of Intersputnik finds its expression, among other things, in the articles of the Agreement concerning the membership, powers and methods of voting in the highest managing organ.

Within the provisional structure of INTELSAT, the basic managing organ had been a committee, on which representation and voting depended on the invested capital according to the principle of a "weightier vote." Thus, the United States had 53% of all votes. In accordance with the new agreements on INTELSAT, the real power, as before, belongs to the managing committee—the Board, with a limited number of representatives, and a system of the "weightier vote." The United States has some 40% of the vote in the Board.

3. In the Intersputnik organization, the Directorate is an international organ, consisting of citizens of States-Members. It is fully accountable to the Council.

In INTELSAT, the functions of managing the system are in the hands of a private American corporation of satellite communications, COMSAT. In accordance with the definitive arrangements on INTELSAT, only after 6 years after the entering into force of these arrangements will the internationalization of the organ managing the current work of INTELSAT be effected.

4. The agreement on Intersputnik does not restrict the rights of States to participate in other systems of communications by means of artificial Earth satellites.

Endeavoring to corroborate for INTELSAT the monopolistic right to international communications by means of artificial Earth satellites, the United States achieved the inclusion in the provisions of the arrangement that the members of INTELSAT were deprived of the right independently to decide questions of their participation in other outer space communications systems.

The above differences show that important organizational and legal principles of the INTELSAT system are of a discriminatory nature, are incompatible with the sovereign equality of states, and contradict the principles of the 1967 Outer Space Treaty and several resolutions of the United Nations General Assembly. Naturally, under these circumstances, the socialist countries could not join the INTELSAT organization despite all advantages of the creation of a single global cosmic communications system.

<sup>63</sup> Paraphrased from Mezhd. kos. pr., *supra* note 56, p. 231-232.



Despite all the advantages pointed out above by Vereshchetin, the Intersputnik organization still remains a regional organization with certain shortcomings as pointed out by Wulf von Kries:<sup>69</sup>

The greatest impediment for Intersputnik, however, lies in the developmental and, in part, also the technological backwardness of the Soviet system which is the base of operations. While the very modern INTELSAT system possesses an almost universal membership and is pursuing its aims in a worldwide framework, Intersputnik must begin with a struggle to establish a regional association of Socialist States. Whether the Organization can recruit new members in addition to the ones mentioned, for instance from the area of the Third World, will primarily depend on whether geostationary satellites can be stationed and whether favorably priced reception and broadcasting stations can be offered. . . .

## VI. SOVIET BILATERAL AGREEMENTS ON COOPERATION IN OUTER SPACE <sup>70</sup>

Soviet writers on outer space law have devoted less attention to the analysis of bilateral outer space law agreements than to general questions of space law. This gap to a certain extent is being filled only recently, and the most complete survey to date has been provided by the well-known Soviet outer space law specialist Vladlen Stepanovich Vereshchetin. In his opinion, bilateral agreements constitute the most widespread legal form of international cooperation in the exploration and utilization of outer space. This form of outer space cooperation is extensively used by the "outer space powers" both in their mutual relations and in relations with third states. Many such agreements have been signed with foreign scientific and technological specialized organizations by the U.S.S.R. Academy of Sciences, the National Aeronautics and Space Administration (NASA) of the United States and the National Center of Outer Space Explorations of France (CNES). According to Vereshchetin, all these agreements have this in common: they constitute a legal form whose framework is used to spell out the obligations of the parties in the field of scientific and technical cooperation to study and manage outer space. Although the contents of the agreements are extraordinarily diversified, the majority of the agreements are aimed at carrying out joint scientific experiments by making use of satellites and rockets, or by placing tracking stations abroad for experimental purposes.

Evidence of the role which the scientific-technical cooperation on outer space plays in contemporary international life appears in the signing during the last few years of inter-State agreements on these questions. The Soviet Union has such bilateral agreements with France, India, and the United States.

### A. AGREEMENT BETWEEN THE U.S.S.R. AND FRANCE

The Soviet-French cooperation in the field of studying and managing outer space for peaceful purposes is based on the agreement between the U.S.S.R. and France concluded in Moscow on June 30, 1966, during the visit of General de Gaulle to the Soviet Union.

In the preamble, the importance of studying and managing outer space for peaceful purposes is stressed, and it is noted that the collaboration between the U.S.S.R. and France in this field corresponds to

<sup>69</sup> W. von Kries. "INTERSPUTNIK-Sozialistisches Gegenstück zu INTELSAT?" ZLW, v. 22, 1973, p. 19-20.

<sup>70</sup> This survey closely follows Vereshchetin in his discussions on this subject in (1) Chapter VIII of *Mezhd. kos. pr.*, *supra* note 56, p. 233-242; and in (2) *Kosmos. Sotrudnichestvo. Pravo* (Outer Space. Collaboration. Law) (1974), p. 40-56. See also *Prav. problemy*, *supra* note 2, p. 109-115.

the traditional friendship between the Soviet and French nations and is to promote further broadening of the collaboration between the two countries and the development of European scientific-technical cooperation generally.

The governments of both countries have agreed on the preparation and carrying out of a program of bilateral cooperation and on providing assistance in the furtherance of these aims to the interested organizations of both countries.

In the agreement, the general directions of future cooperation were determined: studying outer space, including, in principle, the launching by the Soviet Union of a French satellite; undertaking outer space meteorology with the utilization of the newest scientific apparatuses; studying outer space communications by means of artificial satellites of Earth; exchanging scientific information, setting up scientific delegations and organizing conferences and symposia. On the basis of mutual agreement, the cooperation may also be expanded to other fields.

Also established was the machinery to fill out and implement the program of joint projects. It includes mixed working groups of representatives of scientific and technical organizations who have been delegated the right of signing working protocols, determining the contents, and deciding the conditions of cooperation.

The scientific data to be obtained from the carrying out of joint experiments must be accessible to both parties and must be transferred on acceptable terms. The right of first publication belongs to the authors of the experiment.

The agreement has been concluded for a term of 10 years and remains in force until it has been denounced by one of the parties. Upon mutual agreement of the parties, more precise definitions and amendments may be inserted into the agreement.

The viability and timeliness of this agreement are confirmed by the successful course of its carrying out; e.g., as by the significant scientific results obtained by the Soviet and French scholars at the carrying out of joint experiments.

The practical work of implementing the agreement is imposed upon the Council on International Cooperation in the Field of Exploration and Utilization of Outer Space Attached to the U.S.S.R. Academy of Sciences ("Interkosmos") and the National Center of Outer Space Exploration (CNES) of France. For each of the mentioned directions of cooperation, mixed working groups composed of scientists and specialists of both countries have been created. The sessions of the working groups take place every year in the U.S.S.R. and France alternatively. The program agenda of the joint projects, the mutual obligations of the parties, and the terms and methods of their realization are established in the working protocols.

In those cases in which the obligations of the parties are of a broader and enduring nature, special inter-departmental agreements are concluded for the development of the general agreement. Sometimes these are confirmed by an exchange of diplomatic notes between the interested governments. On such foundations, a special Soviet-French protocol was signed in 1969 concerning the organization of joint projects on photographic observation by outer space objects on the Kerguelen Islands (a French possession in the Indian Ocean). In 1972



the meteorological services of both countries together with "Interkosmos" and CNES signed an agreement on the organization of the launchings from these islands of Soviet and French meteorological rockets with the aim of joint examination of the upper layers of the atmosphere along the conditional meridian of 60°–70° Eastern longitude. Within the framework of co-operation between the National Space Research Center of France and the Interkosmos Project of the U.S.S.R. Academy of Sciences great importance has been attached by the Soviet Union to the so-called ARAX project, one of the major Soviet-French experiments concerning magnetically connected points of the Earth—the above-mentioned Kerguelen Islands in the Indian Ocean and the Archangel region in the U.S.S.R. This experiment, according to Piradov, the U.S.S.R. Representative on the Outer Space Committee, took place in two stages: in January and February 1975. Finally, on June 4, 1975, a Soviet rocket had carried into space a small French independent satellite, MAS-2—its flight is being tracked by Earth stations in France.<sup>71</sup>

#### B. AGREEMENT BETWEEN THE U.S.S.R. AND THE UNITED STATES

The first bilateral agreement between the U.S.S.R. and the United States was of an inter-departmental nature. It was concluded on June 8, 1962, by the U.S.S.R. Academy of Sciences and the National Aeronautics and Space Administration (NASA), and was amended by the Agreement of October 8, 1965, Concerning the Preparation and Publication of a Joint Project on Outer Space Biology and Medicine.

On the whole, collaboration during the early years was very limited and did not correspond to the scale of the national programs of the U.S.S.R. and the United States and their role in the studying and managing of outer space. The improvement in the direction of development and the strengthening of the Soviet-American cooperation was felt in 1970–1971 when a series of meetings of scientists and technical specialists of both countries took place with the aim of discussing the possibilities of cooperation in the area of working out a compatible means of a rendezvous and docking of outer space vehicles and stations, as well as in the broader area of scientific explorations in outer space.

These encounters paved the way to the conclusion—during President Nixon's visit to Moscow—of the Agreement between the U.S.S.R. and the United States on Collaboration in the Exploration and Utilization of Outer Space for Peaceful Purposes. It was signed on May 24, 1972.<sup>72</sup>

The agreement, concluded for a term of five years (Art. VI), provides for further expansion of cooperation between the United States and the U.S.S.R. in three basic directions: 1) in the development of cooperation in the fields of space meteorology; in the study of the natural environment; in the exploration of near-Earth space, the Moon and the planets; and in the study of space biology and medicine; and, in particular, in an effort to achieve fulfillment of the Summary of the Results of the Discussion on Space Cooperation between NASA and the U.S.S.R. Academy of Sciences of January 21, 1971 (Art. I); 2) in the carrying out of projects for developing compatible rendezvous

<sup>71</sup> U.N. Doc. A/AC.105/PV.144 (June 9, 1975), p. 41.

<sup>72</sup> For the English text, see *International Legal Materials*, v. 11, No. 4, July, 1972, p. 766-769.



and docking systems of the United States- and Soviet-manned spacecraft and stations in order to enhance the safety of manned flight in space and to provide the opportunity for conducting joint scientific experiments in the future (Art. III); 3) in the encouragement of international efforts to resolve problems of international law in the exploration and use of outer space for peaceful purposes with the aim of strengthening the legal order in space and further developing international space law (Art. IV). In addition, it was agreed that the U.S.S.R. and the United States will carry out general cooperation by means of mutual exchanges of scientific information and delegations, through meetings of scientists and specialists of both countries, and also in such other ways as may be mutually agreed upon. Joint working groups may be created for the development and implementation of appropriate programs of cooperation (Art. II). Finally, it was also agreed that the U.S.S.R. and the United States may by mutual agreement determine other areas of cooperation in the exploration and use of outer space for peaceful purposes (Art. V).

New legal problems could have arisen in connection with the link-up of the Soviet "Soyuz" and the American "Apollo" in outer space (scheduled for and successfully carried out in 1975), especially with respect to the legal regime of both outer space stations during the time when the two craft were linked up and created an international orbiting station. Under whose jurisdiction was the station at that time? Which jurisdiction prevailed, especially during the time when the cosmonauts and astronauts transferred from one spacecraft to another.<sup>73</sup> Fortunately, all went well, and no problems arose that called for such jurisdictional determinations.

### C. AGREEMENT BETWEEN THE U.S.S.R. AND INDIA

The first contacts between the specialists of the U.S.S.R. and India on the questions of collaboration in the exploration of outer space were established in the early 1960's, in connection with the decision of the Government of India to create on its territory the international testing site Thumba for probing the atmosphere by rocket. The placement of this testing site on the geomagnetical equator, located equidistant from the magnetic poles of Earth, makes it possible to carry out interesting scientific experiments to study the Earth's atmosphere and magnetosphere.

Several countries participated in the organization of the testing site facilities and in carrying out scientific experiments there. On January 13, 1964, the Agreement between the Main Administration of Hydrometeorological Service of the U.S.S.R. and the Department of Atomic Energy of India was signed, in accordance with which the Soviet Union gratuitously transferred to India a helicopter, an electronic computer, and several installations for the testing and checking of machinery for the equipment of this testing site.

In the development of this agreement, the same organizations in 1970 signed a new Agreement on the Carrying Out of Systematic Rocket Probing of the Atmosphere from the Thumba testing site with the help of Soviet meteorological rockets. This work is not only of a scientific significance, but is also of practical importance for the improvement of weather forecasts. Both Indian and Soviet specialists

<sup>73</sup> Kosmos. Sotrudnichestvo. Pravo, *supra* note 70, p. 47, and Vereshchetin, *Mezhd. kos. pr.*, *supra* note 56 p. 240.

are participating in the carrying out of joint experiments and in launching rockets.

The next important step in the development of Soviet-Indian collaboration in the studying of outer space was made on May 10, 1972, when in Moscow the U.S.S.R. Academy of Sciences and the Indian Government organization of outer space studies signed an agreement concerning the launching of an Indian satellite with the help of a Soviet booster rocket (*raketa-nositel'*).

The agreement provided for the launching of a satellite for scientific purposes envisaged and manufactured in India during 1974 from the territory of the U.S.S.R. by means of a Soviet booster rocket. The launching of the first Indian Earth satellite from a Soviet station and its carrying into outer space by a Soviet rocket was effected only on April 19, 1975. According to Piradov, three days after the launching, a new agreement was signed between the Academy of Sciences of the U.S.S.R. and the Organization of Space Research of the Government of India on further co-operation in the next few years.<sup>74</sup> The specific technical questions connected with the realization of the project were decided by a mixed working group of specialists from both countries.

The Soviet party gratuitously provided the booster rocket and the means for the launching, as well as the necessary consultative and technical assistance for carrying out the joint project. The scientific results acquired at the launching of the Indian satellite were at the disposal of Soviet and Indian scholars and, on their agreement, will be put at the disposal of the world scientific community at large.

The creation and launching of the Indian satellite according to Vereshchetin served an important stimulus towards scientific and technical progress of India. The Soviet-Indian collaboration in the studying and managing of outer space will, no doubt, receive further development in agreement with the principles of the Treaty on Peace, Friendship and Collaboration between the Soviet Union and India.<sup>75</sup>

#### D. CONCLUSION

After having surveyed the bilateral outer space law agreements of the Soviet Union with France, the United States, and India (outlined above), Vasilevskaja stresses the beneficial collaboration of the Soviet Union with these countries and concludes as follows:<sup>76</sup>

The bilateral cooperation of the Soviet State with other countries is an example of effective collaboration carried out in strict concordance with the norms of international outer space law.

Apparently, this is not the case, in her opinion, with the bilateral agreements of capitalist states, especially those of the United States with countries other than the Soviet Union. She states:<sup>77</sup>

A different situation quite often happens to develop as a result of concluding bilateral agreements between capitalist countries (the United States with England, France, West Germany, the countries of Latin America). Certain circles in the United States consider that one of the criteria of acceptability of bilateral cooperation is the mandatory correspondence of this or another agreement with the American outer space programs, as well as the condition that such agreements must have the character of an essential contribution to such programs.

<sup>74</sup> U.N. Doc. A/AC.105/PV.144 (June 9, 1975), p. 40-41.

<sup>75</sup> For the principles of cooperation in outer space communications between India and the United States, see R. C. Hingorani, "Indo-United States Cooperation in Space Communications," ZLW, v. 24, 1975, p. 203-208, where the author deplores the sporadic and temporary cooperation between these two countries.

<sup>76</sup> Prav. problemy, *supra* note 2, p. 114.

<sup>77</sup> *Ibid.*, p. 114-115.



It is difficult to conceive that, if guided by such criteria, two States could adjust and develop an equal, independent and mutually profitable cooperation.

Such a pessimistic and one-sided attitude toward any meaningful cooperation of the Soviet Union with capitalist countries, in particular the United States, appears to be largely unjustified. It has been disproved, for instance, by the excellent results of the United States-Soviet Union space-docking agreement and the successful completion of the Apollo-Soyuz Test Project (ASTP) in which the Apollo and the Soyuz spacecraft rendezvoused and docked.

Interestingly enough, foreign scholars—who come from neither the U.S.S.R. nor the United States—have sounded a note of caution against bilateral agreements and achievements in space. Thus Saligram Bhatt, an Indian scholar and author of a book on outer space law, has the following to say about the Apollo-Soyuz experiment:<sup>78</sup>

This cooperative enterprise between the two leading space powers is a great achievement indeed. This represents the culmination of efforts for cooperation in outer space.

But he continues:

These agreements are essentially based upon bilateral interests and do not envisage sharing of economic benefits on a multilateral basis. It is feared that bilateralism in space activities may promote the interests of a few states only. Moreover, bilateralism may, following the analogy of the regime of air (and when the limits of national air space are undefined), lead to economic bargaining which in the long run will impinge upon the spirit of freedom in outer space.

## VII. THE DRAFT OF AN INTERNATIONAL TREATY RELATING TO THE MOON

On May 27, 1971, the Soviet Minister for Foreign Affairs addressed a letter to the Secretary-General of the U.N. asking for the inclusion in the agenda of the twenty-sixth session of the General Assembly of the U.N. of an item entitled "Preparation of a Treaty Concerning the Moon." He pointed out that "It is essential that the activities of the States on the Moon should not be allowed to become a source of international conflict and that a legal basis should be established for the potential uses of the Moon." He transmitted a draft Treaty concerning the Moon, which contains the following basic provisions as summarized in his letter:<sup>79</sup>

(1) The exploration and use of the Moon are to be carried out with due regard to the interests of present and future generations.

(2) In accordance with the principles of the Charter of the United Nations, the threat or use of force or any other hostile activities on the Moon as well as the use of the Moon to carry out such activities in relation to the Earth are prohibited.

(3) The prohibition against the installation on the Moon of nuclear weapons and other weapons of mass destruction and against any other activities involving the use of the Moon for military purposes is reaffirmed.

(4) The Moon is to be explored and used by means which ensure that any adverse changes or contamination of the lunar environment are avoided.

(5) The surface and subsoil of the Moon cannot become the property of States, international intergovernmental or non-governmental organizations, national organizations or juridical or natural persons.

(6) States Parties are to take all possible steps to safeguard the life and health of any man on the Moon.

<sup>78</sup> S. Bhatt, *Studies in Aerospace Law. From Competition to Cooperation*. New Delhi, Sterling Publishers, 1974, p. 196.

<sup>79</sup> U.N. Doc. A/8391 (June 4, 1971), p. 2.



A treaty based on the above principles would be an important contribution to the formation and development of international space law. The conclusion of such a treaty would promote the further elaboration of rules of international law relating to the activities of States in the exploration of celestial bodies.

Several provisions of the Soviet draft are identical or similar to those in the outer space treaties in effect. A short summary of the 1967 Outer Space Treaty made by Vasilevskaia admits that in analyzing the text of the 1967 Outer Space Treaty, "one may see that virtually all its major principles pertain directly to the activities of states on the Moon."<sup>80</sup>

In her opinion, this does not eliminate the need for the conclusion of a broad universal agreement specifically regarding the Moon:<sup>81</sup>

However, conclusion of an international treaty, especially for the Moon which in a detailed manner regulates the various aspects of states' activities on it should be considered as topical and timely. This must be done, especially for "strengthening the legal order in space and further developing international space law" as stated in Article 4 of the Soviet-American agreement on collaboration, signed in May 1972.

The Soviet representative Piradov pointed out that a new treaty on the Moon would help the promotion of international cooperation.<sup>82</sup>

The validity of the Soviet arguments for the justification of the repetition of the identical or slightly different terms of the provisions already in effect were strongly criticized.

During the discussions that took place in the Fourteenth Colloquium, Mrs. Galloway observed:<sup>83</sup>

The 1967 Space Treaty has general principles, and some were selected for detailed implementation in the 1968 Agreement on Astronauts and Space Objects and in the Draft Convention on Liability for Damage. But the Soviet Moon proposal is not so detailed and repeats many provisions already satisfied in the 1967 and 1968 treaties. This raises the question of how many space treaties we should have. If there are too many and if each has a different set of States Parties to the treaties, then when a problem arises, some individual States have a choice of which treaty to use and this can lead to uncertainty regarding applicable law.

Even more critical remarks were made by Dr. Mango during the same debates:<sup>84</sup>

Professor Zhukov<sup>85</sup> told us that the purpose of the project is to strengthen the Outer Space Treaty (1967) by repeating the principles stated in it. We have, on the contrary, the apprehension that it may weaken the Outer Space Treaty which is a "Magna Carta" of the outer space law and which required so much work, time and study. The repetition of the principles and the same rules with a different interpretation is dangerous; on the other hand, is it necessary to repeat that what was already expressed with so much solemnity and so clearly in the Outer Space Treaty? For instance, the demilitarization of the Moon is already

<sup>80</sup> E. G. Vasilevskaia, "The Development of the Moon: Some Prospects for Regulation by Law." Soviet Law and Government [hereafter cited as SLG], v. 10, 1972, No. 4, p. 363-364.

<sup>81</sup> Vasilevskaia, *Prav. problemy*, *supra* note 2, p. 91. See also M. Smirnov, "The Need for a Treaty of the Legal Status of the Moon." Fifteenth Colloquium, p. 173-177.

<sup>82</sup> Referring to the recent exploits in the conquest of outer space, he said that those extraordinary scientific and technical achievements were also a concrete manifestation of co-operation among States. It was now essential to formulate international legal rules to ensure that the activities of States in space were carried out in the interest of all peoples and would strengthen international co-operation.

That was precisely the purpose of the draft international treaty concerning the moon proposed by the U.S.S.R. (A/8391 and Corr. 1, annex). U.N. Doc. A/AC.105/C.2/S.R. 187 (July 12, 1972).

<sup>83</sup> Summary of the Discussions. Fourteenth Colloquium, p. 291.

<sup>84</sup> *Ibid.* (1972), p. 284.

<sup>85</sup> G. P. Zhukov, "The Legal Regime for the Moon." Fourteenth Colloquium, p. 50.

included in Article IV of the Treaty. Professor Zhukov told us that the new project anticipates on this subject, something in addition, which is called neutralization, but we did not find in the project anything additional. Moreover, Professor Zhukov told us that it is necessary to have a new treaty on the moon for including therein the demilitarization of circumlunar space. We consider that this space is included already in Article IV of the Treaty, considering that *accessorium sequitur principale*. Even more, Professor Zhukov told us that it is necessary to add to the prohibition of national appropriation the prohibition of the private appropriation. But that, in our opinion, is not necessary: because the private ownership is included in it, and it constitutes a subspecies of the national sovereignty, the prohibition included in the Treaty excludes also private ownership. In conclusion if the purpose of the Soviet project as explained by Zhukov is to strengthen the Outer Space Treaty, we doubt that it could reach that goal.

The reserved attitude of the United States concerning the Soviet proposal changed, as H. Reis observed: <sup>86</sup>

After having regarded the Soviet Union draft with some skepticism initially, for it had been hard at that time to see how the 1967 Outer Space Treaty could be substantially improved, the United States Government had concluded that the negotiation of a new treaty offered opportunities, specially in the field of cooperation in scientific investigation of the planets and the sharing of the results of such exploration. The United States Delegation had consequently introduced at the beginning of the current session a series of amendments to the draft, the most important in its view being those concerning freedom of scientific investigation, international cooperation in such investigation, exchange of personnel, advance reporting, scientific preserves, free and unimpeded access as a means of verification of compliance with the treaty, and consultations in the event of differences between Parties, with an option for unilateral recourse to the good offices of the Secretary-General of the United Nations.

#### A. THE SCOPE OF THE TREATY: THE MOON OR THE MOON AND OTHER CELESTIAL BODIES?

As to the sphere of application of the Treaty on the Moon, the question arises whether this treaty shall cover the activities on the Moon only or also on other celestial bodies. Vasilevskaia summarized the Soviet attitude as follows: <sup>87</sup>

It has been mentioned many times that only in respect of the Moon so much information is available that it gave the opportunity of landing people on the surface of the Moon who made a number of scientific experiments and of making twice unique experiments with automatic self-moving devices directed from the Earth. This kind of activity on the Moon which will be undoubtedly developed and expanded even now requires special regulation. The role of the Moon in the life of society in its social, economic and cultural development will no doubt be of great importance already in the near future. So further elaboration of the progressive rules of international law might contribute to the development of scientific and technical cooperation among states encouraging the fulfillment of the provisions of Article III of the Treaty of Outer Space. As to the activity on other planets it will be reasonable to regulate it only when there are more grounds for it. In respect of each of the celestial bodies, the particulars of which it is very difficult to imagine now, it may be possible to establish their concrete legal rules. This is the standing point of the Soviet lawyers expressed in special literature.

This attitude was not shared by the representative of the U.S.A., H. Reis, who expressed himself as follows in this context: <sup>88</sup>

My Government attaches importance to the question of how this expansion of the scope of the agreement is to be formulated. We, of course, do not oppose giving special emphasis to the Moon, and indeed could not entertain an objection in view of the commitment of human and other resources to the Apollo program.

<sup>86</sup> U.N. Doc. A/AC.105/C.2/SR.188, p. 21-32.

<sup>87</sup> E. G. Vassilevskaya [the spelling of this author's name given thus in the Proceedings of the Sixteenth Colloquium]. "Legal Problems of the Exploration of the Moon and Other Planets." Sixteenth Colloquium, p. 169.

<sup>88</sup> United States Mission to the United Nations. Press Release USUN-3/(73) April 19, 1973, p. 3-4.



But the Moon is not so much the exclusive or even primary objective of either current or projected space activities that it should be cited in the operative articles of the agreement to the exclusion of other celestial bodies. Planetary exploration is well underway.

\* \* \*

These facts explain why we believe that the agreement should appropriately include in its titles, preamble and operative provisions explicit mention of other celestial bodies besides the Moon.

It seems that the United States attitude concerning the scope of the treaty is prevailing with a certain saving of face by the socialist countries. Article 1, paragraph 2, of the Bulgarian Draft Treaty Relating to the Moon stipulates:<sup>89</sup>

2. The provisions of this treaty shall be deemed applicable to the Moon as well as to any natural celestial body, except the Earth, until the entry into force of a treaty regulating the exploration and use of such celestial body whereupon the provisions of this treaty shall cease to be in force with regard to this celestial body. This treaty shall not be applicable to extraterrestrial materials which reach the surface of the Earth by natural means.

#### B. DEMILITARIZATION OF THE MOON

G. P. Zhukov, analyzing the Soviet proposal concerning the Moon, points out that:<sup>90</sup>

Its main aim is to prohibit the military uses of the Moon and to ensure such conditions under which all the activities of the states on the Moon would conform to the interests of peace, and would be carried out for the benefit of the whole of mankind. In the Soviet draft Treaty articles, this basic thought is naturally interpreted in detail.

Specifically, the Soviet draft reaffirms, specially adaptable to the Moon, the principles of the 1967 Treaty on the complete demilitarization of celestial bodies, on the prohibition of deploying, in space, objects with nuclear weaponry or any other types of weapons of mass destruction.

In the preamble of the Soviet draft, one of the goals that was emphasized was the desire to "prevent the Moon from becoming a scene of international conflict."

The provisions dealing with the demilitarization of the Moon are included in Articles I and II of the Soviet draft which read as follows:

*Art. I.* 1. States Parties shall pursue their activities on the Moon and in circumlunar space in accordance with international law, including the Charter of the United Nations.

2. In accordance with the principles of the Charter of the United Nations, use of force in any form or the threat of force, as well as any other hostile actions or threat of such actions, shall be prohibited on the Moon. The use of the Moon to commit any of the aforementioned actions in relation to the Earth or space objects shall also be prohibited.

*Art. II.* 1. The Moon shall be used by all States exclusively for peaceful purposes.

2. States Parties undertake not to place in orbit around the Moon any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or to install such weapons on the surface of the Moon or in its subsoil.

3. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on the Moon shall be prohibited.

<sup>89</sup> U.N. Doc. A/AC.105/115 Annex I (March 27, 1973), p. 12. A similar solution was proposed also by the Czechoslovakian jurist V. Kopal in his paper submitted to the Sixteenth Colloquium; "Legal Questions Relating to the Draft Treaty Concerning the Moon." Sixteenth Colloquium, p. 181.

<sup>90</sup> Zhukov, *supra* note 85. On the question of the demilitarization of outer space, see also his article "Tendencies and Prospects of the Development of Space Law: the Soviet Viewpoint." *In New Frontiers in Space Law*. Edited by E. McWhinney and M. A. Bradley. Leiden, A. W. Sijthoff, 1969, p. 79.

Shortcomings of the Outer Space Treaty of 1967 were also pointed out by S. Bhatt: "Though Article IV provides for arms control measures in so far as prohibiting orbiting of nuclear weapons and reserving the moon and celestial bodies for peaceful purposes, it does not, however, bar carriage of nuclear warheads in suborbital flights," *supra* note 78, p. 72.



The new draft contains provisions similar to a certain extent to those already established in the Space Treaty, Article 4:

The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies shall be forbidden.

The draft of the United States, introduced on April 11, 1972, is slightly different from the Soviet draft, especially the provision concerning the use or threat of force on the Moon and other celestial bodies (Art. I, pt. 2):

2. States Parties shall refrain from the use of the threat of force or any other hostile act or threat of hostile act on the Moon and other celestial bodies except in the exercise of the inherent right of individual or collective self-defense in accordance with Article 51 of the Charter. States Parties shall not use the Moon or other celestial bodies to commit any such acts or to engage in any such threat in relation to the Earth, the Moon or other celestial bodies, spacecraft, the personnel or spacecraft or man-made space objects.

This proposal of the United States, concerning the use or threat of force, with some changes, was taken over by the Bulgarian draft introduced on March 27, 1973, and reads as follows:

*Art. II. 1.* Activities on the Moon shall be carried out in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

2. In accordance with the Charter of the United Nations, the threat or use of force or any other hostile act or threat of hostile act on the Moon is prohibited. It is likewise prohibited to use the Moon in order to commit any such act or to engage in any such threat in relation to Earth or other celestial bodies, spacecraft, the personnel of spacecraft or man-made space objects.

Mr. Darwin, representative of the United Kingdom, commenting on the Soviet draft, observed that:<sup>91</sup>

Many of the principles in the 1967 Treaty were to be found in the present draft (PUOS/C.2/WP(XI)15), but there were also some new points. First of all, the draft was more precise concerning the emplacement of nuclear weapons. With reference to the provision concerning the prohibition of the use of force on the Moon (Article 1, para. 2), he recalled the distinction made in the United Nations Charter between the lawful and unlawful use of force.

### C. NATIONAL NON-APPROPRIATION

Article II of the Outer Space Treaty of 1967 prohibits national appropriation of the Moon and other celestial bodies under any claim of sovereignty, by means of use or occupation, or by any other means. The Soviet draft, Article VIII, to this effect prescribes:

1. Neither States, international intergovernmental or nongovernmental organizations and national organizations having the status of juridical persons or not, nor natural persons, may claim the surface or subsoil of the Moon as their property. The emplacement of vehicles or equipment on the surface of the Moon or in the subsoil thereof, including the construction of installations integrally connected with the surface or subsoil of the Moon, shall not create a right of ownership over portions of the surface or subsoil of the Moon.

2. Portions of the surface or subsoil of the Moon may not be the object of concession, exchange, transfer, sale or purchase, lease, hire, gift or any other arrangements or transactions with or without compensation between States, international intergovernmental or non-governmental organizations or national organizations having the status of juridical persons or not, or of arrangements or transactions between natural persons.

<sup>91</sup> U.N. Doc. A/AC.105/C.2/SR.188 (July 12, 1972), p. 23.

In the opinion of Vasilevskaia:<sup>92</sup>

Such a scrupulous listing of persons, who potentially could claim property rights on the Moon, is in our opinion, completely justified. In particular, the problem could become acute, when on the Moon or its subsoil the exploitation of natural resources will start. The intentions of huge capitalist monopolies concerning the future use of the Earth's one and only natural satellite should be taken into account.

However, an exception is made in Article IX which provides that States Parties shall retain ownership of articles of their property delivered to the surface of the Moon or to circumlunar space, including structures, vehicles and equipment.

#### D. EXPLORATION AND USE OF THE MOON

The freedom of the exploration and use of the Moon was proclaimed by Article I of the 1967 Outer Space Treaty under conditions stipulated therein. These limitations were spelled out in a more detailed manner in the Soviet draft, and especially by the United States' proposals concerning the goals of the exploration and utilization, protection of the environment, diffusion of information, advance notifications, consultations, etc.

The main provisions of the Soviet draft dealing with the exploration of the Moon read as follows:

*Art. III.* 2. Each State Party shall engage in the exploration and use of the Moon with due regard to the interests of the present and future generations and with respect for the rights of other States Parties as specified in this Treaty.

*Art. V.* 1. States Parties may pursue their activities in the exploration and use of the Moon anywhere on the surface of the Moon, in its subsoil or in circumlunar space.

2. For these purposes States Parties may, in particular: Land their space objects on the Moon, launch them from the Moon and place them in circumlunar orbit; and dispose their vehicles, equipment and personnel anywhere on the surface of the Moon, in its subsoil or in circumlunar space.

Vehicles and personnel of States Parties may move freely over the surface of the Moon, in its subsoil or in circumlunar space.

3. Action of States Parties in accordance with paragraphs 1 and 2 of this article should not interfere with the activities of other States Parties on the Moon. Where such interference may occur, the States Parties concerned shall undertake consultations.

*Art. VI.* 1. States Parties may establish both manned and unmanned stations on the Moon.

Stations shall be installed in such a manner that they do not impede the free access of vehicles and personnel of other States Parties pursuing activities on the Moon to all areas of the Moon, as provided for in Article I of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

In the opinion of Vasilevskaia, the Soviet draft contains some provisions going far beyond the 1967 Outer Space Treaty. And as such, she considers the provisions of Article III, paragraph 2:<sup>93</sup>

A provision on taking into account present and future generations will serve as the guarantee that, in the process of the exploitation of the Moon, there will be averted its rapacious and irrational use, as well as the pollution or the "disruption of the existing balance of the lunar environment" (Article IV of the draft).

<sup>92</sup> Prav. problemy, *supra* note 1, p. 98. For critical remarks on the subject, see also S. Gorove, "Property Rights in Outer Space: Focus on the Proposed Moon Treaty." JSL, v. 2, No. 1, p. 28 ff.

<sup>93</sup> Prav. problemy, *supra* note 2, p. 92. See also her report "Legal Regulation of Activities on the Moon for the Cause of Peace and Progress." Fifteenth Colloquium, p. 178-181.



The States, who in accordance with the 1967 Treaty have the right freely to explore the moon, must act in such a way "as to prevent adverse changes in the lunar environment and its contamination through the introduction of extralunar matter" (Article IV). If necessary, consultations shall be held between the States.

The United States delegation considered the Soviet draft on that point to be inadequate. It submitted proposals going far beyond the Soviet draft introducing new elements concerning freedom of scientific investigation, cooperation, exchange of personnel, reporting, scientific preserves, consultation, and others. On April 11, 1972, the United States submitted the working paper to this effect:<sup>94</sup>

### *Article III*

(Freedom of scientific investigation, co-operation, exchange of personnel, reporting, scientific preserves, access, consultations)

1. There shall be freedom of scientific investigation on the Moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

2. International co-operation may take place by such means as multilaterally, through international intergovernmental organizations or bilaterally.

3. States Parties shall engage in the exploration and use of the Moon and other celestial bodies with due regard to the interests of present and future generations and with respect for the right of other States Parties specified in this Treaty and other treaties in force.

4. States Parties agree on the desirability of exchanging scientific and other personnel on expeditions to or installations on the Moon or other celestial bodies to the greatest extent feasible and practicable.

5. Well in advance of launching, but in any event not later than 60 days before launching, States Parties intending to conduct activities on the Moon or other celestial bodies shall inform the Secretary-General of the United Nations, as well as the public and the international scientific community, of the planned time frame of launching, purposes of the mission, intended locations of the mission, orbital parameters, and prospective duration of the mission. Timely notice shall also be given of any major changes in plans for the mission, of the termination of the mission and, in due course, of the nature, conduct, locations and results of the mission. The Secretary-General of the United Nations shall disseminate such information, as well as other information transmitted to him under this Treaty immediately and effectively.

6. If a State Party becomes aware that another State Party plans to operate simultaneously in the same area of or in the same orbit around or trajectory to or around the Moon or other celestial body, it shall promptly inform the other State and the Secretary-General of the timing of and plans for its own operations.

7. States Parties undertake to report to other States Parties and to the Secretary-General on areas of the Moon and other celestial bodies having special scientific interest with a view to the possible establishment in those areas of scientific preserves whose exploration and use should be subject to conditions to be agreed.

8. All stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other States Parties on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facilities to be visited.

9. A State Party which has reason to believe that another State Party is not fulfilling its obligations or is interfering with the rights of other States Parties under this Treaty may request consultations between the States Parties concerned.

<sup>94</sup> U.N. Doc. A/AC.105/C.2(XI).



A State Party receiving a request for such consultations shall enter into such consultations without delay. Each State Party participating in such consultations shall seek a mutually acceptable resolution of any controversy and shall bear in mind the rights and interests of all States Parties. The Secretary-General shall be informed of the results of any such consultations. Any State Party may, at any time and without seeking the consent of other States Parties concerned, seek the assistance of the Secretary-General of the United Nations in resolving any such controversy.

#### E. COMMON HERITAGE OF ALL MANKIND

In 1972, the United States proposed that "The natural resources of the Moon and other celestial bodies shall be the common heritage of all mankind."<sup>95</sup>

This proposal provoked a strong reaction on the part of the Soviet Union. Soviet representative Piradov stated:<sup>96</sup>

\* \* \* his delegation wished to eliminate any doubts in the minds of the other members as to the basic position of the U.S.S.R. on some of the most problematical elements in the compromise proposals.

Firstly, the concept of "the common heritage of mankind" did not have a real and practical meaning at the present stage of activities relating to the Moon. Too much attention had been paid to that aspect of the problem. The U.S.S.R. delegation, which had circulated a special working document on the matter, was concerned at the unfounded analogies which had been drawn with other fields of law at an apparent desire for the early establishment of parts of the international regime, for which at the present stage there was no practical need. His delegation had been prepared to accept such proposals only in the interest of completing the preparation of the treaty at the present session.

<sup>95</sup> U.N. Doc. A/AC.105/C.2(CD) Working Paper 12 Rev. 1, April 17, 1972.

<sup>96</sup> U.N. Doc. A/AC.105/C.2/SR 204 (April 20, 1973), p. 6. In the above-mentioned working papers of March 28, 1973, the Soviet Union's position was explained in the following terms:

One of the questions that still remains unresolved in the consideration of the draft treaty relating to the Moon is the problem of the use of the concept of the "common heritage of all mankind".

We shall try to determine the legal content of that formula. In the legal sense we are familiar with such civil law terms as "inheritance" and "succession". We do not use the term "heritage" in civil law. We use this word in the philosophical, rather than the legal sense.

Nevertheless, what is involved is not so much the terminology as the essence of the problem. Nobody is likely to put forward any telling arguments to support the extension of the constructions and categories of civil jurisprudence to space law, which is a part of international public law.

What is "inheritance" in the civil law sense? This concept is inseparably bound up with the right of ownership, the possession of a thing and the use of it.

The recognition of inheritance and the right to succession is bound up with the concept of property and property rights. Without the concept of property, the concept of succession also becomes meaningless.

How does international space law resolve the question of property rights? The right of ownership over space objects and their parts is recognized (article VIII of the Treaty on Outer Space). And this is fully justified, since such objects are property belonging to a State or specific persons. That is a matter of civil law. International law, in this case, has merely confirmed the universal recognition of the corresponding parts of the civil law of States in respect of property rights over specific things.

In the case of celestial bodies, the Treaty on Outer Space has established definitely and unequivocally that the Moon and other celestial bodies are not subject to national appropriation (art. II): they may not become any person's thing or any person's property. Developing this generally recognized approach logically, the Soviet draft treaty concerning the Moon provides that no person may claim the surface or subsurface of the Moon as their property (article VIII of the draft). Consequently, portions of the surface or subsurface of the Moon cannot be the object of civil law transactions—grant, exchange, transfer sale or purchase, lease, hire and so forth. Nor can they, quite naturally, be the object of succession. A thing that belongs to nobody cannot pass into any person's possession by succession.

According to the 1967 Treaty on Outer Space, celestial bodies are the province of all mankind. They are available for the undivided and common use of all States on Earth, but are not jointly owned by them. This is the essential feature of international law.

Based on these scientific and legal premises, the Soviet delegation would be able to consider the question of the use in the draft treaty relating to the Moon of the concept of the "common province of all mankind". It would seem that by taking this line a satisfactory compromise might also be found on this matter.

The Argentine delegation, among others, took a strong stand for the adoption of the United States proposal and on April 17, 1973, presented its working paper.<sup>97</sup>

The concept of "the common heritage of all mankind" was adopted in the Bulgarian draft in Article 10 concerning the bans of the future agreement on the exploitation of the natural resources of the Moon.

#### F. FURTHER ARRANGEMENTS ON THE EXPLORATION OF THE MOON

On April 17, 1972, the United States proposed that, if practical exploitation of lunar resources should become a reality, the parties to the treaty should join in an international conference with the view to negotiating arrangements for the international sharing of the benefits of such exploitation.

This proposal was favorably received. The representative of Czechoslovakia Mr. Hulinsky during the 1973 session observed:<sup>98</sup>

While due note should be taken of efforts which had been made to establish an international regime for the orderly exploitation of the resources of the Moon and other celestial bodies, his delegation felt that it would be premature to attempt

<sup>97</sup> Argentina: working paper (17 April 1973) Draft Treaty Relating To The Moon (Question of the "common heritage of all mankind").

The Soviet delegation submitted, on 28 March 1973, a working paper in which it tries to determine the legal content of the expression "common heritage of all mankind".

According to that paper, the term "heritage" is not used in civil law in the Soviet Union, where it has a philosophical rather than a legal sense. It does not appear that this can carry over into international law, where formulae and principles of general law are employed in the structure of many of its institutions. The word "succession", for instance, has been used in classical international law when speaking of succession of States, and it has not lost its validity—so much so that it is among the topics for priority treatment in the International Law Commission. The Spanish term for "heritage" ("*patrimonio*") is also used by modern international law in referring, for instance, to the "patrimonial sea" ("*mar patrimonial*").

The working paper in question states that, without the concept of property, the concept of succession also becomes meaningless. It is relevant to point out that there are two classes of domain; one is direct domain, which traditionally was known as "eminent domain" or, in short, ownership. This type of domain has not been recognized as being applicable to the Moon in any of its forms. On the other hand, however, we must not forget that there has also existed since the most ancient times—and this has carried over into modern legal systems, particularly since the Second World War—a domain known as beneficial ownership (*dominio útil*), which comprises enjoyment, receipt of the fruits, profit. There undoubtedly exists on the Moon beneficial ownership, pertaining to its utilization and to the possible exploitation of its natural resources. What is one to call this community of ownership, this conjunction of profits, this joint receipt of fruits and products—in a word, this common property of the Moon? There is no need to create anything new. The idea of heritage—which can even be intangible—has existed since olden times, and it resolves the issue without any major difficulty. Moreover, international law has always recognized, in addition to sovereignty, a right of ownership on the part of States, which is no different from the concept of ownership under general law.

The Soviet working paper states that the concept of inheritance is inseparably bound up with the right of ownership, the possession of a thing and the use of it. This is obvious and is demonstrated by the fact, among others, that on the occasion of its lunar missions the Soviet Union took possession of things (rocks and other samples from the Moon) and made use of them. Thus, it operated within a concept of inheritance.

As applied to outer space and celestial bodies, the concept is not philosophical but legal, because the question hinges not on terminology but on the essence of the problem and on the prevailing rules. Consequently, there is little point in making a philosophical or philological analysis of the expression "common heritage of all mankind". It is, however, essential to note that the substance of the question is normative; it has to do with the norms and principles of international law.

The major merit of replacing the vague expression "province of all mankind" by the more meaningful expression "common heritage of all mankind" is that in so doing one has specified the commencement of an action, replacing an abstract statement by a means of operating, within a specified legal framework.

The fact that General Assembly resolution 2749 (XXV) on the sea-bed was adopted without any dissenting vote is definite proof of the existence of this legal viewpoint common to all States, entirely irrespective of their special internal features, their philosophical ideas or their policies.

U.N. Doc. A/AC.105/115, Annex I, 1973, p. 29.

<sup>98</sup> U.N. Doc. A/AC.105/C.2/SR 198 (August 11, 1973), p. 57. The Romanian representative Ceausu, in the same session, suggested to limit themselves to a general formula of an international regime for future exploitation:

As concerned the natural resources of the moon, it was necessary to agree on a general formula conducive to the elaboration of an international régime to regulate the future exploitation of the moon's resources as a common heritage of mankind. For the time being it would be premature to go into detail on the international régime . . .

U.N. Doc. A/AC.105/C.2/SR 196 (August 13, 1973).



to solve the problems involved in the question of natural resources. Outer space activities were at present essentially matters of scientific research and would remain so for a long time to come; the effective exploitation of possible resources found belonged for the moment to the field of fiction.

Ideas relating to the exploitation of resources had obviously been derived from current discussions on the legal regime governing the sea-bed, without taking into consideration the essential differences between two areas.

The same idea was incorporated in the Bulgarian draft, Article X, paragraph 3.<sup>99</sup>

3. States parties to this treaty, bearing in mind the need for economic advancement and for assuring the orderly and safe development and rational management of the natural resources of the moon, when the exploitation of those resources becomes a reality, recognize the importance of establishing an international regime governing such exploitation. In establishing this regime due regard shall be paid to the participation of all states in sharing the benefits to be derived from the exploitation of natural resources of the Moon, and in particular to the consideration of the desirability of declaring these resources the common heritage of all mankind. For this purpose the depositary governments shall convene a conference of all States parties to this treaty on the request of one-third of such States.

During the discussions of the future regime of the exploitation of natural resources of the Moon, some proposed that until such a regime will be established, exploitation of the Moon is prohibited. In order to avoid any such interpretation, the United States representative H. Reis declared:<sup>100</sup>

As far as they had gone, those proposals had met with very wide acceptance. However, the United States was not prepared to accept an express or implied prohibition of the exploitation of possible natural resources before the international conference met and agreed on appropriate machinery and procedures and before a treaty embodying them took effect. The treaty relating to the Moon could not reasonably require that exploitation must await the establishment of the treaty-based régime.

In the opinion of S. Neil Hosenball, "the net effect of such a moratorium would be to destroy any initiative for the development of the technology, either for the use experimentally or for its mass production."<sup>101</sup>

In addition, the developing nations wanted to establish basic principles about sharing the resources so that they could benefit when the exploitation became commercially feasible.

These were the main obstacles to reaching an agreement. The Legal Subcommittee, in its session held in 1975, could reach agreement only on the purposes of the future agreement concerning exploitation of the Moon, namely: 1) the orderly and safe development of natural resources of the Moon, 2) the rational management of those resources, 3) the expansion of opportunities in the use of these resources, and 4) an equitable sharing in the benefits derived from those resources.<sup>102</sup>

Some jurists have even advanced the idea that it is necessary to create an international agency for the coordination of global activities in outer space.

<sup>99</sup> U.N. Doc. A/AC.105.115 Annex I (March 27, 1973), p. 12.

<sup>100</sup> U.N. Doc. A/AC.105/C.2/SR. 205 (August 13, 1973), p. 115. Commenting on this statement made by H. Reis, Stephen Gorove made the following observations:

In other words, in the view of the United States, the draft treaty on the Moon could not reasonably be interpreted to require that exploitation had to await the establishment of a treaty-based regime. According to the United States the main purpose of such a regime was to ensure the orderly and safe development and rational management of the natural resources of the Moon and other celestial bodies, to expand opportunities in the use thereof and determine an equitable sharing by all parties in the benefits derived therefrom taking into consideration, in particular, the interests and needs of the developing countries.

Gorove, *supra* note 92, p. 28.

<sup>101</sup> S. N. Hosenball, "Current Issues of Space Law Before the United Nations," JSL, v. 2, No. 1, p. 9.

<sup>102</sup> U.N. Doc. A/AC.105/147 (March 11, 1975), Appendix I, p. 1.



Vasilevskaia, in analyzing this problem, considers that it deserves serious consideration, but the idea of internationalization of all outer space activities could not be considered as ripe:<sup>103</sup>

Similar opinions are expressed by [those who] join the concept of the internationalization of the Moon for the establishment of the international agency within the United Nations for the management of celestial bodies. The problem involved was discussed by the Working Group on the problems of mastering of the celestial bodies in the Eleventh Colloquium of Outer Space Law (October 1968).

The problem of the establishment of an international agency deserves serious consideration. The scope and the volume of the increasing activities of states for the mastering of outer space, the Moon, Mars, Venus, make topical the problem of the establishment of an international organization, providing guaranties for the mastering of other worlds exclusively for peaceful purposes, ensuring the interests of all of mankind, and coordinating the efforts of individual states.

As to the internationalization of all outer space activities, including the activities on celestial bodies, Soviet authors are of the opinion that this idea, for the time being, cannot be considered as ripe.

#### G. ADVANCE NOTIFICATION AND SHARING OF INFORMATION

In 1972 the United States proposed that a State intending to conduct missions of the Moon should, 60 days in advance of launching, provide notice of the intended time of launching and the purposes, locations, orbital parameters, and duration of the mission. It also proposed that information should be furnished on the results, including scientific results, upon completion of the mission, and 30-day reports should be filed in connection with missions lasting more than 2 months. According to the explanations given by H. Reis, the proposals were made for the following reasons:<sup>104</sup>

The United States delegation proposed advance notification for three reasons: first, it would assist in promoting the safety of missions and non-interference among missions of various countries, whether manned or unmanned. Secondly, it would help make the best use of the scientific benefits resulting from each mission in that greater knowledge of what other parties were doing would stimulate efforts to avoid duplication. Thirdly, it would help protect the balance of the existing environment of a celestial body by facilitating the exchange of scientific opinion between exploring parties.

In the opinion of E. G. Vasilevskaia, the basis for the solution of the problem of information concerning exploration on the Moon is Article XI of the Space Treaty, which prescribed the duty, "to the greatest extent feasible and practicable," to inform the Secretary-General as well as the public and the international scientific community "of the nature, conduct, locations, and results of such activities." In addition to this provision, the Soviet draft on the Moon in Article VII prescribes the duty to exchange information on any phenomena one discovers "which could endanger the life or health of men on the Moon."<sup>105</sup>

It seems that these two Articles are adequate in themselves to ensure the solution of these problems which arise over making information available, first of all, to establish conditions of maximum security for the people during the outer space experiments . . . .

The duty of states to give information in advance on preparatory measures could as a result be considered as an attempt to interfere in the internal affairs of the state. The organization and preparation of the experiment and the launching of the outer space object—it is [all] the business of the sovereign state. This follows from the meaning of the Outer Space Treaty, as well as from general

<sup>103</sup> Prav. problemv, *supra* note 2, p. 56. See also Vasilevskaia's article "The Development of the Moon: Some Prospects for Regulation by Law," SLG, v. 10, 1972, No. 4, p. 326 ff.; and Bhatt, *supra* note 78, p. 205.

<sup>104</sup> U.N. Doc. A/AC.105/C.2/S.R.205 (August 13, 1973), p. 115.

<sup>105</sup> Prav. problemv, *supra* note 2, p. 96-97.

international law. Therefore the supply of information by a state concerning its internal affairs may be only voluntary. Interference from outside could only impede the accomplishment of the outer space exploration. At the stage where an experiment is already prepared, there could arise, for instance, necessary changes of the date of the launching of the object, the place of the launching, or the approach to the Moon, and even the character of the experiment itself.

The establishment of legal norms on mandatory advance information concerning the preparation of the launching to the Moon presupposes the right of other states to make preliminary consultations or expressions of protest against the planned experiment. Otherwise the provision of the preliminary information would not make legal sense. However, the recognition of such right could hinder scientific technical progress: it would limit the possibilities to obtain scientific information.

In her opinion, the Bulgarian proposal made during the twelfth session of the Legal Subcommittee (March 1973) could help provide a solution.

Article IV, paragraph 3, of the Bulgarian proposal reads as follows:<sup>106</sup>

3. States Parties shall inform the Secretary-General as well as the public and the international scientific community, to the greatest extent feasible and practicable, of their activities concerned with the exploration and use of the Moon. Information on the time, purposes, locations, orbital parameters, and duration shall be given in respect of each mission to the Moon as soon as possible after launching, while information on the results of each mission, including scientific results, shall be furnished upon completion of the mission. In case of a mission lasting more than 60 days, information on the conduct of the mission shall be given periodically at 30-day intervals. For missions lasting more than 6 months, only significant additions to such information need be reported thereafter.

The United States, in its working paper of April 17, 1973, stated that, in addition, the United States would accept the proposal to add an obligation to furnish information not only on scientific results of missions but also on natural resources found on the Moon or other celestial bodies.

#### H. PREVENTION OF CONTAMINATION AND ADVERSE CHANGES

Article IV of the Soviet draft stipulates that States parties shall explore and use the Moon by reasonable means avoiding the disruption of the existing balance of the lunar environment, and shall explore and use the Moon in such a way as to prevent adverse changes in the lunar environment and its contamination through the introduction of extralunar matter.

The proposal of the United States is much more detailed and contains provisions on the obligations of States to notify the Secretary-General of the U.N. on planning of the mission on the Moon:<sup>107</sup>

1. States Parties shall explore and use the Moon and other celestial bodies in a reasonable manner so as to minimize the disruption of the existing balance of their environments whether by introducing adverse changes in such environments, their harmful contamination through the introduction of extra-environmental matter or otherwise.

2. States Parties planning missions to the Moon and other celestial bodies shall notify the Secretary-General of measures being adopted to minimize the disruption of the existing balance of the environments of these bodies. Such reports shall include the trajectories to be flown, the distance of closest approach, and specific measures taken to control micro-organisms on and in the space craft.

<sup>106</sup> U.N. Doc. A/AC.105/115, Annex I (March 27, 1973), p. 13.

<sup>107</sup> Working Paper A/AC.105/C.2 (XI); Working Paper V; April 11, 1972.



3. States Parties shall notify the Secretary-General of plans to place radioactive material on or in orbit or other trajectory around the Moon or other celestial bodies and shall give similar notification with regard to the conditions and effects of such placement when it occurs.

It seems that in the Bulgarian draft submitted on March 27, 1973,<sup>108</sup> there were included the new elements of the American draft and in addition, provisions on mandatory consultations before proceeding to experiments which might disrupt the balance of the lunar environment. Article VI reads:

1. In exploring and using the Moon, States Parties shall take measures to prevent the disruption of the existing balance of its environment whether by introducing adverse changes in such environment, its harmful contamination through the introduction of extra-environmental matter or otherwise. States Parties shall also take measures to prevent harmfully affecting the environment of the Earth through the introduction of extraterrestrial matter or otherwise.

2. States Parties to this treaty, in communicating the information on their activities related to the exploration and use of the Moon in accordance with paragraph 3 of Article IV of this treaty, shall indicate measures adopted by them for the purposes of minimizing the disruption of the existing balance of the lunar environment. States Parties shall also give notice of all placement of radio-active materials on the Moon and on the purposes of such placements.

3. If a State Party has reasons to believe that any activities or experiment planned by it on the Moon may cause a substantial disruption of the existing balance of the lunar environment, it shall undertake appropriate international consultations before proceeding with any such activity or experiment.

4. States Parties shall report to other States Parties and to the Secretary-General concerning areas of the Moon having special scientific interest in order that consideration may be given to their designation as international scientific preserves for which special protective arrangements are to be agreed upon without prejudice to the rights of other States Parties to this treaty.

#### I. VISITS OF INSTALLATIONS

The Soviet draft does not contain provisions pertaining to the right of the other States to visit the installations on the Moon. The United States on April 11, 1972, submitted the following proposal:

*Art. III, 8.* All stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other States Parties on a basis of reciprocity. Such representatives shall be given reasonable advance notice of a projected visit in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.

The Bulgarian draft did not go beyond simple *desiderata*:

*Art. V, 3.* States Parties agree on the desirability of exchanging scientific and other personnel on expeditions to or installations on the Moon to the greatest extent feasible and practicable.

In the opinion of Mr. Darwin (United Kingdom), "In the present draft, the right of access to installations and equipment on the Moon had been reaffirmed in a more precise form than in the 1967 Treaty."<sup>109</sup>

#### J. LIABILITY

Article XI of the Soviet draft stipulates the following in regard to liability:

In addition to the provisions of Article VII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, a State Party shall be liable for damage resulting from its act or omission [thereof] of its personnel on the Moon to the prop-

<sup>108</sup> U.N. Doc. A/AC.105/115, Annex I (March 27, 1973), p. 14.

<sup>109</sup> U.N. Doc. A/AC.105/C.2/SR. 188 (July 12, 1972), p. 24.



erty or personnel of other States Parties on the Moon unless it is established that, the damage occurred through no fault of the said State or of its personnel on the Moon.

On April 13, 1972, the United States submitted its proposal concerning the liability of States Parties to the treaty:<sup>110</sup>

States Parties to the Treaty shall bear international responsibility for national activities on the Moon and other celestial bodies where such activities are carried out by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities on the Moon and other celestial bodies shall require authorization and continuing supervision by the appropriate State Party.

In the Bulgarian draft, paragraph 1 of Article 3 of the American proposal was reproduced almost in identical terms. However, the following was added to paragraph 2:

2. A State Party shall bear international liability for the damage caused on the Moon due to its fault or the fault of persons for whom it is responsible, to another State Party, its natural or juridical persons.

According to the Canadian representative, Mr. Miller:<sup>111</sup>

As to liability for damage caused on the Moon, the Soviet Union delegation was of the view that the scope of Article III of the Convention on International Liability should be broadened so that the State concerned would be liable for damage caused on the Moon unless it was able to establish that the damage occurred through no fault of its own.

#### K. INTERNATIONAL CONSULTATIONS

Consultations for the settlement of disputes concerning violations of the treaty obligations were introduced by Article III, paragraph 3, of the Soviet draft:

3. A State Party which has reason to believe that another State Party is violating its obligations under this Treaty may request consultations between the States Parties concerned.

In addition to this general provision concerning violations of the Treaty in general, consultations are especially mentioned also in Article IV concerning adverse changes of the lunar environment and its contamination, and Article V concerning interference in activities between two States on the Moon.

The idea of international consultation was favorably admitted by other countries and finally, in the Bulgarian draft, was formulated in Article 16, paragraphs 2 and 3, as follows:

A State party which has reason to believe that another State party is not fulfilling the obligations incumbent upon it pursuant to this treaty or that another State party is interfering with the rights which the former State has under this treaty may request consultations with that party. A State party receiving such a request shall enter into such consultations without delay. Any other State party which requests to do so shall be entitled to take part in the consultations. Each State party participating in such consultations shall seek a mutually acceptable resolution of any controversy and shall bear in mind the rights and interests of all States parties. The Secretary-General shall be informed of the results of the consultations and transmit the information received to all States parties concerned.

3. If the consultations do not lead to a mutually acceptable settlement which has due regard for the rights and interests of all the States parties, the parties concerned shall take all measures to settle the dispute by other peaceful means of their choice and appropriate to the circumstances and the nature of the dispute.

<sup>110</sup> U.N. Doc. A/AC.105/C.2 (XI), Working Paper 16 (April 13, 1972), p. 15.

<sup>111</sup> U.N. Doc. A/AC.105/C.2/SR 187 (July 12, 1972), p. 11.

If difficulties arise in connexion with the opening of consultations or if consultations do not lead to a mutually acceptable settlement, any State party may seek the assistance of the Secretary-General of the United Nations without seeking the consent of any other States party concerned, in order to resolve the controversy. A State party which does not maintain diplomatic relations with another State party concerned shall participate in such consultations, at its choice, either itself or through another State party or the Secretary-General, as intermediary.

The following is the opinion of V. Kopal:<sup>112</sup>

The application of this method for the purpose of removing possible doubts about or objections against some activities or experiments as to harmful effects which they may have on the environment seems to be, for the time being, the only possible way of how to solve this issue. At the same time it should be reminded that such remedy will remain unperfect if it leaves to individual States to decide whether and when such consultations should take place and if it does not oblige the parties to act in accordance with its conclusions.

### VIII. REMOTE SENSING OF EARTH RESOURCES BY SATELLITES

The United Nations Committee on the Peaceful Uses of Outer Space established a Working Group on Remote Sensing of Satellites under the aegis of the Scientific and Technical Subcommittee. This Working Group held its organization meeting on September 9, 1971,<sup>113</sup> and a preparatory session in May 1972. Several sessions followed.

With respect to the legal implications of remote sensing, the Working Group made an interesting comment on the Outer Space Treaty in its progress report of February 14, 1973:<sup>114</sup>

In the opinion of some members it was, *inter alia*, essential to establish how far the rules of the Outer Space Treaty or other space law could be considered to cover satisfactorily remote sensing satellite activities, and it was underlined that this activity has as its main object the Earth environment to which many other existing or "traditional" rules might already apply. It was, therefore, proposed that the work to be performed in the legal area should aim both at filling possible gaps in present space law and the application—*ex analogia*—of existing principles of law in related areas, such as for example those pertaining to sovereign rights of States, domestic and international acquisition and dissemination of scientific and commercial data.

On April 18, 1973, the Soviet Union submitted its "Model Draft Principles Governing the Use of Space Technology by States for the Study of Earth Resources" consisting of five statements which read as follows:<sup>115</sup>

(B) *Proposal relating to agenda item 6 (Matters relating to the activities carried out through remote sensing satellite surveys of earth resources)*

1. Activities connected with the study of the natural resources of the Earth by means of space technology shall be conducted in accordance with the principles of international law, including the United Nations Charter, and in the interests of peace and progress for all peoples.

2. States which make use of space technology for the purpose of studying Earth resources undertake to respect the sovereignty of other States and, in particular, their inalienable right to dispose of their natural resources and of information concerning those resources.

<sup>112</sup> V. Kopal, "Legal Questions Relating to the Draft Treaty Concerning the Moon," Sixteenth Colloquium, p. 186. However, Gerard Wolf considers that the introduction of consultations with a certain assistance of the Secretary-General of the U.N. constitutes a step forward. "Le projet de traité sur la lune; sa place dans l'évolution du droit international public." Sixteenth Colloquium, p. 205.

<sup>113</sup> E. Galloway, "Teledetection of Earth Resources by Satellite. Introductory Report." Sixteenth Colloquium, p. 94.

<sup>114</sup> Progress Report of the Working Group on Remote Sensing of the Earth Satellites on the Work of its Second Session. Committee on the Peaceful Uses of Outer Space. U.N. Doc. A/AC.105/111 (February 14, 1973), p. 12-13, as quoted by Galloway, *ibid.*, p. 97, 102.

<sup>115</sup> U.N. Doc. A/AC.105/C.2/L.88 (April 18, 1973), p. 7-8.



3. International co-operation in the use of space technology to study the natural resources of the Earth must contribute to the independent economic development of all States and be undertaken on the basis of respect by States for each other's interests.

4. A State which makes use of space technology for the purpose of studying the natural resources of the Earth and which, in the course of such activities, obtains information concerning the natural resources of another State shall be required to transmit such information to the latter State on mutually acceptable terms.

5. A State which obtains information concerning the natural resources of another State through the use of space technology shall not be entitled to make it public or transmit it to third States or international organizations without the clearly expressed consent of the State to which the natural resources belong, nor shall it be entitled to use the information in any other manner to the detriment of the latter State.

(C) *Proposal relating to paragraph 5 of the report USSR: Add to paragraph 5 of the draft report (19 April 1973)*

He remarked that there was a parallel development in the work of the Legal Sub-Committee on outer space and the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction in that the legal principles governing outer space activities and those governing activities in the area of the sea-bed and the ocean floor appeared to be very similar. In the course of the general exchange of views some delegations shared this view while other delegations strongly disagreed with this approach.

France also took a stand on this question by submitting on May 15, 1973, to the Committee on the Peaceful Uses of Outer Space its "Draft Principles Governing Remote Sensing of Earth Resources from Outer Space." This draft also emphasized respect for sovereignty, restricted the objective of such exploits to "[in] the interests of all countries," required that the sensed State would receive prior notification and that the Secretary-General should be informed, as well as suggested that every State would have the right to participate in activities on land and sea areas outside their jurisdiction "within the framework of an organized system of international cooperation."<sup>116</sup>

In the course of the thirteenth session of the Legal Subcommittee, a working paper was submitted jointly by France and the Soviet Union on draft principles governing the activities of States in the field of remote sensing of Earth resources by means of space technology.<sup>117</sup> It consists of the following seven principles:<sup>118</sup>

1. Cosmic space shall be open to use by all States without any discrimination of any kind, on the basis of equality and in accordance with international law—including the UN Charter and the 1967 Treaty on the Principles of Activity of States in the Exploration and Utilization of Outer Space—for the purpose of remote sensing of the Earth's resources, for peaceful purposes exclusively.

2. Such utilization must, in particular, respect the principle of national sovereignty, particularly the right of peoples and governments to exercise permanent sovereignty over their wealth and resources as a fundamental component of their right to determine their own destinies, as well as their inalienable right to dispose of their natural resources and information about such resources.

3. Activities in the realm of remote sensing of the Earth's resources from outer space, and international collaboration toward these ends, shall be conducted for the benefit and in the interests of all countries, regardless of the levels of their economic or scientific development, and their results must promote improvement of the state of the environment.

4. A State exploring the Earth's natural resources by means of space technology and obtaining in the course thereof information on the natural resources of another State is required to transmit that information to it under mutually acceptable conditions.

<sup>116</sup> U.N. Doc. A/AC.105/L.69 (May 15, 1973).

<sup>117</sup> U.N. Doc. A/AC.105/C.2/L.99.

<sup>118</sup> Quoted from V. D. Bordunov. "Use of Space Technology to Explore for Natural Resources," SLG, v. 14, 1975, No. 1, pps. 99-100.



5. Each State whose territory is affected by activities associated with remote sensing of the Earth's resources may, by agreement with a State conducting remote sensing, take part in this activity under equal and mutually acceptable conditions. A State obtaining information on the natural resources of another State in the course of remote sensing shall not have the right to publicize it without the clearly expressed agreement of the State to which these natural resources belong or to utilize it in any way to the detriment of such a State. Documentation deriving from remote sensing shall not be made over to a third party, be it a government, international organization, or private individual, without the agreement of the State whose territory is involved. An exception to this principle shall be made with respect to information about natural catastrophes and phenomena that may do damage to the environment as a whole.

6. All States have the right, under equal and mutually acceptable conditions, to receive and process data comprising the results of activity in remote sensing of territories outside the national jurisdiction of any State; they also have the right of access, under the same conditions, to the results of this activity within the framework of organized international collaboration.

7. Each State engaging in remote sensing of the Earth resources shall inform the Secretary-General of the UN about this, in accordance with Article XI of the Outer Space Treaty.

According to Bordunov, the Outer Space Treaty of 1967 "does not contain provisions on exploration of the natural environment." Nevertheless, the general principles established therein are also applicable to the remote sensing of Earth resources. The specifics of this activity require creation of special legal norms:<sup>119</sup>

In the process of remote sensing from outer space by the employment of space technology, national territories under the sovereignty of other States may become subjects of such exploration. The employment of space technology for these purposes creates the opportunity for obtaining information on the national natural resources of States. Utilization of such information is intimately interrelated to the principle of respect for national sovereignty established in the UN Charter. The totality of the rights providing for independent and free disposition of natural resources within the territory of a given State is recognized by international law as a principle of the sovereignty of States over natural resources and has independent significance within the general concept of national sovereignty, but is also a component thereof. Being a component of national sovereignty, the principle of the sovereignty of States over natural resources has gained recognition in the theory of international law (4) as a principle of international law having objective existence and recognized in practice by all States, regardless of their socioeconomic systems.

Inasmuch as the utilization of information on the national resources of States is intimately interrelated with the right to dispose of such resources, remote sensing activities from outer space must be carried out on the basis of respect for national sovereignties and the sovereign rights of States to dispose of their own natural resources and information about those resources.

... From the standpoint of international law, every technical stage produces legal problems of differing degrees of difficulty. Of the total set of such questions, the most important is that of protecting the rights of States with respect to information on their national resources. Note that the information obtained by means of space technology differs by virtue of the difference in the concrete and specific tasks that technology is called upon to perform. At the present stage of mastering outer space, information on national resources holds a special place. Its distinctive quality is manifested in the "materialization" of information in the course of social production. (5) The broad possibilities for the utilization of information on national resources in different branches of the economy, and those material benefits that may be derived from it, inevitably pose the question of legal regulation of the utilization of such information.

The natural resources of a nation are not only important elements of its territory. They are a component of the means of production providing people with material goods. It is entirely obvious that information on national resources is of enormous overall economic significance to the life of any State. The material connection of such information with the economy of any State may be manifested in the form of economic pressure threatening the foundations of the State's economic life and its sovereignty.

<sup>119</sup> *Ibid.*, p. 101-102.

In connection with these susceptibilities of the problem, Vere-shchetin raised the question <sup>120</sup> whether the conduct of explorations of the natural environment over territories of foreign countries without their consent should be prohibited. While the legality of putting the question in this way cannot on principle be faulted, it is possible to indicate a number of difficulties which would arise in any effort to carry out such prohibition. First, it is difficult technically to carry out the prohibition, because that would require the switching off of on board equipment (*bortovaya aparatura*) every time the flight over the territories of definite States takes place. Secondly, it is practically impossible to exercise control over the carrying out of this prohibition. And, thirdly, a similar prohibition may create obstacles in the carrying out of a number of explorations, for instance, the atmosphere and the World's ocean, which are of interest to all States.

Brazil has made itself a spokesman for an even stricter attitude toward the freedom of remote sensing. The proposed draft treaty which Brazil presented to the United Nations on February 1, 1974, contains a clause which reads: "State parties shall refrain from undertaking activities of remote sensing of natural resources belonging to another State party, including the resources located in maritime areas under national jurisdiction, without the consent of the latter."<sup>121</sup> This also seemed to be the prevailing attitude in the discussions of the Latin American Air and Space Society in 1973.<sup>122</sup>

However, on the basis of a detailed analysis of provisions of the Outer Space Treaty, Professor Gorove has concluded that this Treaty contains no stipulation prohibiting the use of Earth resources survey satellites:<sup>123</sup>

More than that—as intimated beforehand—under a strict interpretation it could be argued that some of the Treaty provisions would not be applicable at all to such satellites. The only article which might be invoked to give some limited support to the objection to the use of satellites surveying resources of another State is Article III providing that activities in the exploration and use of outer space must be carried out in such a way as to promote international cooperation and understanding. Therefore, if the activities are objected to by a number of States and create international friction instead of understanding, they may be regarded as violating the spirit if not the letter of the Treaty. Against this argument stands the fact that the exploration relates not to outer space but to the resources of the Earth. All in all, it would appear to be a circumspect policy for the United States to continue to explore and utilize whenever possible the bilateral or multilateral avenues of international cooperation.

Another conclusion that emerges is that not only does the use of such resources survey satellites seem permissible with no indication that any sovereign rights are violated but there equally appears no stipulation prohibiting the use and dissemination of the data collected. In fact, dissemination seems mandatory within the general conditions set forth in the Treaty . . . .

As a final concluding remark it may be pointed out that the eventual utilization of Earth resources data collected by one State or its nationals through satellite observation does not appear to be such an act that may give rise to a legitimate claim for damages under the provisions of the Treaty or the Liability Convention.

In the last session of the Legal Subcommittee (February 10–March 7, 1975), there were introduced a joint proposal by Argentina and Brazil,<sup>124</sup> joint proposals cosponsored by Chile, Mexico and Venezuela and a working paper by the United States on the development

<sup>120</sup> Mez. kos. pr., *supra*, note 1, p. 209.

<sup>121</sup> Quoted by G. Finch in "American Society of International Law Workshops on Space Stations: Present and Future," JSL, v. 2, Fall 1974. No. 2, p. 154–155.

<sup>122</sup> *Ibid.*, p. 157–158 (Dr. Heere's statement).

<sup>123</sup> S. Gorove, "Earth Resources Survey Satellites and the Outer Space Treaty," JSL, v. 1, Spring 1973. No. 1, p. 84–85.

<sup>124</sup> U.N. Doc. A/C.1/1047.



of additional guidelines on remote sensing of the natural environment of the Earth from outer space.<sup>125</sup>

After the deliberations, the Legal Subcommittee concluded that there are certain common elements in the proposed drafts, but still a great number of problems were raised during the discussions:<sup>126</sup>

The Working Group noted there were certain common elements to be found in the three drafts and the views expressed by many members in several areas. Among these were:

(a) that remote sensing activities by means of space technology should be conducted for the benefit and in the interest of all mankind; this new technology would be of particular significance to developing countries in their plans and programmes for national development;

(b) that remote sensing activities by means of space technology should be conducted in accordance with international law including the United Nations Charter and the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies;

(c) that the maximum benefits to all countries could be obtained by international co-operation at all levels, particularly on a regional basis;

(d) that States undertaking programmes for remote sensing activities by means of space technology should encourage international participation;

(e) that in remote sensing activities by means of space technology measures should be taken to promote efforts for the protection of the natural environment of the Earth.

8. In addition to the areas of agreement referred to in the preceding paragraph, the following were among the main questions raised and considered by the Working Group: whether a future international instrument on remote sensing should deal with remote sensing of the natural resources of the Earth or with the whole natural environment of the Earth; whether sovereign rights of States over their natural resources apply also to information on those resources; whether consent of the sensed State should be required and, if so, whether the consent should be applied to all or only certain remote sensing activities; whether the question of consent should not be considered within the broader context of international co-operation and participation; whether a distinction should be made between the question of access to information on resources within national jurisdiction and on resources outside national jurisdiction; whether the access by the sensed States, the sensing State and third parties respectively to information or data should be unlimited or subject to certain conditions and, in the event of the latter, whether it might be possible to draw on analogies with the existing domestic practice of some States whereby they protect the confidentiality of certain kinds of information concerning their natural resources, and formulate similar guidelines in regard to data collected by means of remote sensing on an international level; whether there should be parallel consideration of the legal and organizational aspects of remote sensing; whether certain organizational and technical solutions might not help resolve some legal problems.

9. The Working Group was of the view that substantial progress was achieved in the consideration of this item. The Working Group recommended that work on this item should be continued as a matter of high priority at the next session of the Sub-Committee, bearing in mind the views expressed by States including proposals for draft international instruments.

## IX. DIRECT BROADCASTING

The problem of direct satellite television broadcasting, into augmented or unaugmented home receivers, to the public at large—the technology of which may not be developed before 1985—has resulted

<sup>125</sup> U.N. Doc. A/AC.105/C.2/L.103.

<sup>126</sup> U.N. Doc. A/AC.105/147 English Annex III, p. 2-3.



in serious discussions.<sup>127</sup> Direct satellite broadcasting on the one hand may be used for cultural and social development, particularly for the benefit of the developing nations, for promoting peace, progress, and understanding among nations and peoples.

On the other hand, there is no doubt that such broadcasting may influence public opinion on political, religious, and other matters.

Thus, being concerned about the influence of the free flow of information and ideas, certain states proposed to introduce general limitations on and program control over this type of broadcasting. Soviet jurist B. G. Dudakov in his paper submitted to the Sixteenth Colloquium supplied the following grounds to justify such limitations and program control:<sup>128</sup>

Direct television broadcasting may negatively influence to culture, [sic]<sup>129</sup> religion and social customs of peoples. These transmissions may be used for war propaganda, stir up and enkindle national hatred between them and to enter into direct and serious conflict with legitimate interests of States to territory of which direct television broadcasting could be realized. Also it may undermine the economy, to serve as misinformation means for the population and interference into matters of domestic concern of these States.

It seemed to us that international law should create the regulation of direct television broadcasting realization until it will be the reality. This view point finds support in different countries of the world.

No State has a right to realize to the territory of other States some kind of activity and specifically television broadcasting without definitely expressed agreement from the side of a sovereign State.

Any State has a right independently to decide which kind of information might be transmitted to the population of this State. Control realization under all mass information sources, including naturally television broadcasting, is the sovereign right of a State.

Direct television broadcasting to the territory of foreign States should be realized only with definitely expressed consent of these States.

Opinions were divided about whether such regulations are needed. Opponents of the regulations argued that present generally accepted principles governing outer space activities are applicable to direct broadcasting by satellites, and that additional regulations might rather inhibit than promote international cooperation and understanding. However, the opposite opinion prevailed.

Sharing the concern of the Soviet jurists and the Government, the Soviet delegate at the fifteenth session of the U.N. Space Committee held in 1972 urged it to elaborate and adopt regulations concerning direct broadcasting:<sup>130</sup>

We must give priority to the need to protect State sovereignty from any external intervention, and we must prevent the conversion of this type of direct broadcasting from satellites into a source of international conflict and aggravation

<sup>127</sup> E. Galloway, "Direct Broadcast Satellites." *In Proceedings of the Seventeenth Colloquium on the Law of Outer Space*, September 30-October 5, 1974. Amsterdam, The Netherlands (Multilith):

The technological features of Direct Broadcast Satellites have been fully set forth at UN meetings, but they are not understood by all discussants, particularly regarding the interrelationship between technical and legal matters. In brief, the technology is divided into two main parts: direct broadcasting into community receivers and into individual home receivers. Individual reception is further divided into two parts: broadcasting into augmented home receivers and later into unaugmented home receivers. There is little controversy over such broadcasting to community receivers, a technology which is already being tested in the U.S. ATS-F satellite. There is an agreement between the United States and India for direct satellite broadcasting of Indian programs into their community receivers.

The controversial aspects of the question concern the possibility of direct television satellite broadcasting into home receivers, whether augmented or unaugmented. The fact that this aspect of the technology is not yet developed (and may not be developed before 1985) does not lessen concern by some nations who fear receiving unwanted broadcasts and desire to formulate guidelines for control of the activity prior to its development.

<sup>128</sup> B. G. Dudakov, "Legal Aspects of Direct Television Broadcasting." *Sixteenth Colloquium*, p. 65-66. See also I. V. Vasilieva, "Social Consequences of Overlapping and the Problem of Regulations of the Direct Television Broadcasting by Means of Artificial Earth Satellites (DTB) in International Law." *Sixteenth Colloquium*, p. 87-89.

<sup>129</sup> This seeming error and those following are contained in the original which is cited here verbatim.

<sup>130</sup> U.N. Doc. A/AC.105/PV.111 (1972), p. 28-29.

of relations between States. We know that this might well occur if the necessary conditions are not established and we can establish such conditions by elaborating and adopting the rules of international law defining the rights and obligations of States in respect of direct television broadcasting.

The General Assembly of the United Nations in its Resolution 2916 (XXVII), dated November 9, 1972, expressed its opinion that "it is necessary to elaborate principles governing the use by States of artificial Earth satellites for direct television broadcasting with a view to concluding an international agreement or agreements."

#### A. THE UNESCO DECLARATION OF 1972

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has been engaged in planning the broadcasting of educational and cultural programs by means of space communications since as early as 1964.<sup>131</sup> At that time, it was decided that UNESCO should prepare a study of the problems posed by space communications for the free flow of information, the spread of education, and greater cultural exchange. As a result of the work of a UNESCO committee consisting of representative experts of broadcasting organizations from various countries and other groups of experts, a Draft Declaration was prepared. The draft was then examined and revised by a group of experts who met at UNESCO Headquarters from May 23 to May 26, 1972.<sup>132</sup> Thereupon, the UNESCO General Conference on November 15, 1972, adopted a final text entitled "Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange."<sup>133</sup>

The Declaration consists of a lengthy preamble and eleven operative articles. The preamble restates the purpose of UNESCO and stresses that, in order to realize this purpose:

\* \* \* the Organization will collaborate in the work of advancing the mutual knowledge and understanding of peoples through all means of mass communications and to that end recommend such international agreements as may be necessary to promote the free flow of ideas by word and image.

It further stresses that everyone has the right to seek, receive, and impart information and ideas through any media regardless of frontiers; condemns hostile propaganda; and points out that radio frequencies are a limited natural resource belonging to all nations and that the assignment of adequate frequencies is essential to the use of satellite broadcasting for education, science, culture and information.

The operative articles of the Declaration proclaim the following guiding principles on the above-mentioned uses of satellite broadcasting:

Inasmuch as the use of outer space is governed by international law, the development of satellite broadcasting is to be guided by the principles and rules of international law, in particular the Charter of the United Nations and the Outer Space Treaty (Article I).

Satellite broadcasting shall respect the sovereignty and equality of all States. It shall be apolitical and must be conducted with due

<sup>131</sup> Nozari, *supra* note 47, p. 144.

<sup>132</sup> UNESCO Report on the Draft Declaration, U.N. Doc. A/AC.105/104, quoted by Nozari, *ibid.*, p. 179, note 68.

<sup>133</sup> U.N. Doc. A/AC.105/109.



regard for the rights of individual persons and nongovernmental entities, but only to the extent recognized by States and international law (Article II). Article III proclaims the principle of nondiscrimination, by stating that the benefits of satellite broadcasting should be available to all countries without discrimination and regardless of their degree of development; and it also requires satellite broadcasting to be based on international cooperation, worldwide and regional, intergovernmental and professional.

Satellite broadcasting provides a new means of disseminating knowledge and promoting better understanding among peoples. The fulfillment of these potentialities requires due regard for the needs and rights of audiences, for the objectives of peace, friendship, and cooperation between peoples, and for economic, social, and cultural progress (Article IV).

Articles V through VII deal with each of the three objectives of satellite broadcasting: the free flow of information, the spread of education, and the promotion of cultural exchange:

*Free flow of information.*—the widest possible dissemination, among the peoples of the world, of the news of all countries should be ensured. Every effort should be made to ensure the factual accuracy of information disseminated, and news broadcasts shall identify the body which assumes responsibility for the news program as a whole, attributing, where appropriate, particular news items to their source.

*Spread of education.*—each country has the right to decide on the content of the educational program broadcast by satellite to its own people.

*Promotion of cultural exchange.*—cultural programs should respect the distinctive character, the value and the dignity of each respective culture, and the right of all countries and peoples to preserve their culture as part of the common heritage of mankind.

States should reach prior agreements concerning direct satellite broadcasting to the population of countries other than to the country of origin of the transmission, taking into account the principle of freedom of information (Article IX):

Finally, Article XI provides that “the principles of this Declaration shall be applied with due regard for human rights and fundamental freedoms.”

Manfred A. Dausen, a French legal scholar in the field of outer space law, commenting on the Declaration, made the following remarks:

L'UNESCO has expressed itself with more insistence in favor of the free flow of information as the basis for the regulation of direct television broadcasting, namely in its Resolution [i.e., Declaration] of November 15, 1972 (preamble and art. V, par. 1). It must, however, be stressed that simple resolutions of assemblies of international organizations do not have a mandatory effect *per se*; they may only be considered an expression of an *opinio juris*, more or less universal, of the international community and therefore as a possible creative element of international customary law.<sup>134</sup>

#### B. THE SOVIET DRAFT

On August 8, 1972, the Soviet Union submitted to the Legal Subcommittee of the United Nations Outer Space Committee the

<sup>134</sup> M. A. Dausen, “La télévision directe par satellites et le droit international.” *Revue générale de l'air et de l'espace*. v. 36, 1973, p. 393.



draft of a "Convention on Principles Governing the Use by States of Artificial Satellites for Direct Broadcasting."<sup>135</sup>

This document avoids any reference to the principle of freedom of information. Instead, it states in the *preamble*: that direct television broadcasting requires "broad international *co-operation* on the basis of special legal principles governing that activity" which "must be for the benefit of all States and free from *discrimination* of any kind." The preamble also warns "that the *misuse* of such a mass information medium . . . could be detrimental to the legitimate interests of States." Thus, the emphasis of the convention provisions is not on the general rule that direct television broadcasting is admissible, but on the modifications by means of which the Soviet draft would like to limit this admissibility, as pointed out by E. D. Schäfer.<sup>136</sup>

In the opinion of I. M. Kolosov and B. G. Dudakov, it contains the following six basic principles:<sup>137</sup>

1. Direct television broadcasting shall be carried out exclusively in the interests of peace, progress, and the development of mutual understanding between peoples. It shall serve the aims of increasing the educational level of people, the development of culture and the broadening of international interchanges.

2. All states shall have the equal right to carry out direct broadcasting, as well as to enjoy the benefits arising from it, without discrimination of any kind.

3. Direct television broadcasting to foreign states shall be carried out only with the express consent of these states.

4. The following shall be regarded as illegal and as incurring international liability of states: transmissions by direct television broadcasting carried out without the express consent of these states, broadcasts detrimental to the maintenance of international peace and security; or those representing interference in intra-state conflicts; involving an encroachment on fundamental human rights; propagandizing violence and horrors; undermining the foundations of local civilization and culture; misinforming the public.

5. States may employ the means at their disposal to counteract unwanted direct television broadcasting transmissions not only on their own territory, but also in outer space and other areas beyond the limits of the national jurisdiction of any state.

6. A State shall bear international responsibility for all national activities connected with the use of artificial earth satellites for the purposes of direct television broadcasting, irrespective of whether such broadcasting is carried out by governmental agencies or by nongovernmental organizations and juridical persons.

Thus, the Soviet draft is based on the principle of State sovereignty and its rights to control information. Dr. Jan Busak, after surveying international practice concerning the restriction on broadcasting, came to the conclusion that:

All of the above-mentioned demonstrates that the principle of sovereignty of States is the predominant rule in the sphere of information and that solutions adopted for the broadcasting-satellite service in order for it to become the most effective mass communication should be based, first of all, on the principle of

<sup>135</sup> U.N. Doc. A/AC.150/C.2/L. 89 (April 19, 1973).

<sup>136</sup> E. D. Schäfer, "Der Vorschlag der Sowjetunion für ein Abkommen über Satellitenfernsehsendungen". ZLW, v. 24, 1975, p. 27.

<sup>137</sup> I. M. Kolosov and B. G. Dudakov, "Direct Television Broadcasting by Satellites." Mezhd. kos. pr., *supra*, note 1, p. 184.

mutual respect of sovereignty. On this principle is based the Draft Convention on Principles Governing the Use by States of Artificial Earth Satellites for Direct Television Broadcasting, submitted to the XVIIth General Assembly of the United Nations by the Soviet Union in 1972.<sup>138</sup>

The partisans of the restriction based on sovereign rights of each State to control information deny the existence of the principle of the freedom of information. Dudakov and Kolosov, Soviet jurists, justified such denial by the following considerations:<sup>139</sup>

Now, already for a quarter of a century the jurists debate [the question] whether there does exist in international law a universally recognized principle of freedom of information. The adherents of the existence of such a principle use as their main argument [the fact] that some declarations and conventions dedicated to the protection of human rights include rules concerning everyone's right freely "to seek, receive and impart information and ideas through any media and regardless of frontiers. . . ."

We, however, suppose that these rules do not have the meaning attributed to them by some jurists and diplomats. First of all, human rights are not international in the full meaning of this word. The rights of citizens are regulated by the legislation of each State in a sovereign manner and irrespective of any other external authority. International law acts relating to the field of human rights mean only that States agree to definite general principles which must be reflected in their national legislation. The degree and forms of their being taken in consideration may vary depending on national, historical or other peculiarities. Article 28 of the Universal Declaration of Human Rights provides for the right of everyone to be entitled to a social and international order in which all other rights and freedoms [set forth in this Declaration] can be fully realized. It is absolutely evident that only each State [itself] can independently secure within its confines the corresponding social order which also includes questions of information by means of mass media. Point 3 of Article 10 of the International Covenant on Civil and Political Rights provides for the possibility that the States may restrict the human right to freedom of expression of his opinion, whenever this is necessary for "respect of the rights and reputation of others" and for "the protection of national security, public order, or of public health or morals of the population."

One should not also identify the right to express one's own opinion with the right to realize mass information. All States strictly control the activities of their mass information organs and even more meticulously watch the influx of mass information from abroad. The recognition of the giving of a "free hand" to the State in the field of the realization of international mass information contradicts the generally recognized principle of recognition of State sovereignty and the principles of the Declaration of 1965 concerning the inadmissibility of intervention in the domestic affairs of States, concerning the protection of their independence and sovereignty.

Under the provisions of Article IV of the Soviet draft, States parties would:

. . . agree to exclude from television programs transmitted by means of artificial Earth satellites any material publicizing ideas of war, militarism, nazism, national and racial hatred and enmity between peoples, as well as material which is immoral or instigating in nature or is otherwise aimed at interfering in the domestic affairs or foreign policy of other States.

<sup>138</sup> J. Busak, "The Need for an International Agreement on Direct Broadcasting by Satellites." *JSL*, v. 1, No. 2, p. 149.

<sup>139</sup> *Mezhd. kos. pr., supra* note 1, p. 180-181. See also P. L. Lukin, "Ispol'zovanie sputnikov dlia radiosv'язi" (The Use of Satellites for Radio Communications). In *Pravovye aspekty ispol'zovaniia iskustvennykh sputnikov dlia tselei meteorologii i radiosv'язi*. Edited by N. A. Iushakov. Moscow, 1970, p. 144.

The American propaganda machine refers to "freedom of information" in order to justify its [own] dirty deeds. It is true that Art. 19 of the Universal Declaration of Human Rights indicates that everyone has the right to hold opinions and the right to freedom of expression of his opinions. It is pointed out in the Declaration that this right of everyone includes "the right to hold opinions without interference and freedom to seek, receive and impart information and ideas by any means and regardless of state frontiers." The Soviet representative cautioned on the negative results of such formula at the drafting of the Declaration. Such treatment may be used by fascist elements, enemies of peace to impart man-hating ideas, calls to fascist terror, wars of aggression against peoples. "Freedom of information" may be used for subversive activity, for organizing anti-government demonstrations.



In addition, according to Article VI, paragraph 2, the following types of broadcasting shall be regarded as illegal and incurring the international liability of States:

- (a) Broadcasts detrimental to the maintenance of international peace and security;
- (b) Broadcasts representing interference in intra-State conflicts of any kind;
- (c) Broadcasts involving an encroachment on fundamental human rights, on the dignity and worth of the human person and on fundamental freedoms for all without distinction as to race, sex, language or religion;
- (d) Broadcasts propagandizing violence, horrors, pornography and the use of narcotics;
- (e) Broadcasts undermining the foundations of the local civilization, culture, way of life, traditions or languages;
- (f) Broadcasts which misinform the public on these or other matters.

Paul Laskin and Abram Chayes in their report on the international telecommunications program submitted the following observations on these provisions of the Soviet draft:

The Soviet demand for a code of conduct also raises serious problems, both practical and conceptual. First, there is the breadth and vagueness of the language used to describe prohibited conduct. If we examine the proscriptions of the Soviet code, we can understand in a general way the range of conduct to which these strictures are addressed, and for the most part we can deplore it. But broad and indeterminate phrases such as those in the Soviet code are not appropriate as a foundation of legal obligation, or even to define principles endorsed by international agreement. Words like these do not embody legal concepts, and they cannot draw on any common body of usage within the international community to give precision to their meaning. There is rarely consensus as to their import even within a single society. This objection—the overbreadth and vagueness of the categories of prohibited broadcasts—seems inherent in any attempt at a convention or principles distinguishing in advance between broad classes of permissible and impermissible subject matter.

Second, if a code of the sort proposed by the Soviet Union is embodied in an international instrument, it would be exceedingly difficult to amend it in response to accumulating experience with satellite broadcasting. Excessive rigidity of this kind seems particularly inappropriate in a field that is so new and so fluid in all its dimensions—in technology, economics, the potential for regional and national development, and the sense of the kinds of program content that will be acceptable to audiences in practice.

Third, a fair reading of the Soviet code indicates that its prohibitions are not limited to international broadcasting, but apply also to programs intended for and confined to a purely domestic audience. This would constitute an unprecedented limitation of national authority over domestic communications and of the interest of States in determining the character of their own television systems.

Finally, and most importantly, the difficulty with the Soviet code is that it sacrifices the principle of the free flow of information and ideas. Even if there were agreement on the legal meaning of the provisions of the code, its enforcement would involve a system of thoroughgoing governmental censorship that would not only transgress specific constitutional provisions in the United States and other States, but would offend deeply cherished traditions of free speech in many countries without express constitutional provisions.<sup>140</sup>

The Soviet draft on direct television broadcasting has been forcefully criticized by a German scholar who considers it unacceptable for Western countries.<sup>141</sup> He stresses that it is the avowed aim of the Soviet Union to cut off its population from a free and undisturbed flow of information from the Free World. This, however, runs counter to a basic human right of all mankind—to keep itself informed by all accessible means. He further states that the Federal Republic of Germany has enshrined this right in Article 5 of its nation's Basic

<sup>140</sup> P. Laskin and A. Chayes, "A Report of the Panel on International Telecommunications Policy," *Direct Broadcasting from Satellites: Policies and Problems*. The American Society of International Law. *Studies in Transnational Legal Policy*. No. 7, 1975. p. 26-27.

<sup>141</sup> Schäfer, *supra* note 136, p. 28.



Law. This provision in addition to the freedom of the press guarantees the "freedom of reporting by means of broadcasts and films." Therefore, Schäfer argues, Germany on constitutional grounds would be prohibited from acceding to an agreement such as the Soviet draft in its present form. Schäfer points to the example of the United States which "has also heretofore sided with the point of view that a free access to all television broadcasts throughout the world constitutes the sole precondition for the expansion of international understanding and collaboration." He adds:

This conviction, to be sure, does not in the last place originate from the trust in the excellence of one's own system. Adoption of the Soviet draft would jeopardize further development of human rights. The West would in the case of adoption of such an agreement give up much, I believe, too much of its achievements in the field of human rights. The thrust of the Soviet Union making this proposal must be rejected by the West with firm determination.

Suggesting that, as long as a compromise formula acceptable to the free world is found, only bilateral agreements should regulate the above field, he concludes by voicing a strong opinion that, as regards direct television broadcasting, there should be no compromise in favor of the Soviet point of view.

#### C. THE PROBLEM OF PRIOR CONSENT

Some states are concerned that direct broadcasting may be used for programs which may be detrimental or disruptive to their social order or culture. Thus, the demand has been made that no broadcasting from any State be allowed without the express consent of the State which may be the intentional or unintentional recipient of such broadcasts. On the other hand, those—including the United States—who are attached to the principle of the free flow of information and ideas, are opposed to raising the principle of internal censorship to the status of international law, as pointed out by F. S. Ruddy:<sup>142</sup>

That issue [the possibility of direct broadcast satellites] is still with us and involves, not simply the protection of sovereign rights, but how to maintain the free flow of information and ideas while protecting legitimate sovereign interests.

That issue does not involve the measures a state may take within its own borders to restrict or stifle information. In regard to these, as a practical matter at least, a State has the power to do as it pleases. What is at issue is whether countries favoring censorship domestically are going to have an international superstructure to do their censoring for them; whether domestic censorship is to be raised to a principle of international law.

We are mindful of the legitimate concerns of nations on the question of sovereign rights, and we are, and must always be, willing to discuss and explore them.

Nonetheless, for reasons of our own fundamental law we are without power to agree to any instrument which barter away the right of free expression. But even if we were legally free to do so, we would not, and for two reasons: first, because we believe an open marketplace of ideas and information is essential to the well-being of the international community; and second, because the free flow of information injures no nation.

<sup>142</sup> F. S. Ruddy. "The Freedom of Information and Direct Broadcasting Satellites." Sixteenth Colloquium, *supra* note 13, p. 82. See also T. M. Kolosov. *Massovaya informatsiya i mezhdunarodnoe pravo* (Mass Media Information and International Law), Moscow, 1971, No. 10, p. 37-38:

The Soviet jurists proceed from the point that . . . the ideological struggle in inter-state relations may and to a certain extent already is an object of international law regulation. . . . In the present case, we do not speak of agreements in the sphere of ideology, not about a compromise on ideological questions, but of norms of international law, obligating the states not to permit the propaganda of certain conceptions . . . and to use in the ideological struggle on the international arena only [such] means as are admissible under international law.

In 1973, the United States submitted its proposal on Draft Principles of Direct Broadcast Satellites consisting of eleven articles which stressed that international direct television broadcasting should be carried out in a manner compatible with the maintenance of international peace and security with the view to enhance cooperation, mutual understanding and friendly relations among all States and peoples (Art. 3), and also that such activity be conducted in a manner which would encourage and expand the free and open exchange of information and ideas while taking into account differences among cultures and maximizing the beneficial use of new space communications technologies (Art. 4).<sup>143</sup>

The principle of prior consent which the United States continues to reject, for constitutional and philosophical reasons, has many implications. The representative of the United States, Lee T. Stull, explaining the attitude of the United States toward the need for prior consent for direct satellite broadcasting had the following opinion:<sup>144</sup>

First, the proposals for prior consent apparently envisage granting the government of any state the power of absolute veto over reception of any TV broadcasting whatsoever from another state. How can support for such total veto power which could be exercised arbitrarily, be consistent with support for the expansion of the exchange of information and ideas and with article 19 of the Universal Declaration of Human Rights which asserts the right to "receive and impart information and ideas through any media and regardless of frontiers"?

Secondly, even where governments did not choose to exercise a total veto power to prohibit all broadcasting to their territory, they could invoke the consent principle to impose selective censorship or to prohibit entire categories of program material as a price for giving consent or as a pretext for not doing so. Is this envisaged by countries supporting a broad consent principle? What effect would restrictions varying widely in scope and impact have on an expanding use of satellite broadcasting?

Thirdly, what problems would arise from any sudden arbitrary withdrawal of consent, perhaps as the result of a change in government in a receiving country? This would seem particularly hazardous for regional arrangements.

Fourthly, let us consider the questions of the consent principle in relation to broadcast spillover. If spillover also were subject to a regime of prior consent, how would a country deal with a challenge to its own domestic direct broadcast satellite system by a neighboring country objecting to some undesired spillover? Could one country in a specific geographic area veto the operation of a regional system by refusing to consent to the arrangement because of spillover? Do countries supporting the prior-consent principle assume they can make convenient exceptions to exclude some countries in a region? Furthermore, if the countries in a particular region decide they do not wish to have a prior-consent restriction on regional broadcasting, would it be possible simply to make an exception to a global principle? Have countries which may desire domestic or regional systems weighed the viability of relying on such exceptions based on subjective distinctions between unavoidable or unintentional spillover on the one hand and intentional broadcasts on the other?

Finally, what are the implications for other communications media of introducing a consent principle in the case of direct broadcast satellites? Do we really want to open up the use of such a principle as a precedent that could be invoked to stem the free flow of information and ideas?

#### D. RESULTS OF THE DELIBERATIONS

After the meeting of March 4, 1975, the Working Group established by the Legal Subcommittee on February 10, 1975, presented its report to the Legal Subcommittee in which the results of the deliberations concerning direct television broadcasting by satellite were summarized.

<sup>143</sup> U.N. Doc. A/AC.105/WG.3(V) CRP.2. On May 2, 1973, a proposal of Canada and Sweden was submitted on draft principles governing direct broadcasting by satellite (U.N. Doc. A/AC.105/127, Annex III), and by Argentina (U.N. Docs. A/AC.105/127, Annex V and A/AC.105/134).

<sup>144</sup> Department of State Bulletin, v. 70, 1974, p. 448-449.



A high degree of consensus was reached on the following subjects: applicability of international law; right and benefits of states; international cooperation; state responsibility; and peaceful settlement of disputes. Certain elements on which agreement was not reached were placed in square brackets.

For other subjects—such as: purposes and objects, consent and participation, spillover, duty and right to consult—alternative proposals were formulated. On still other subjects—such as program content, unlawful/inadmissible broadcasts, copyright—no agreement was reached, and everything was placed in square brackets.

On two main issues, purposes and objectives and consent and participation, the following alternatives were formulated:

#### PURPOSES AND OBJECTIVES

##### *Alternative A*

Activities in the field of direct television broadcasting by satellite should serve the purpose of maintaining international peace and security, developing mutual understanding and strengthening friendly relations and co-operation among all States and peoples, assisting in the social and economic development particularly in the developing countries, facilitating and expanding the international exchange of information, promoting exchanges in the field of culture, science and economy and enhancing the educational level of peoples of various countries. To this end activities in the field of direct television broadcasting by satellite shall be carried out by States exclusively in a manner compatible with the above-mentioned objectives and with due regard to the provisions of the principle . . .<sup>145</sup>

##### *Alternative B*

Activities in the field of [international] direct television broadcasting by satellite should facilitate and expand the mutual international exchange of information and ideas, promote cultural and scientific exchanges, and enhance the educational level of all peoples. Such broadcasting should encourage the development of mutual understanding, friendly relations, and cooperation among all States and peoples, and should be conducted in a manner compatible with the maintenance of international peace and security. Efforts should be made where appropriate to encourage beneficial applications of direct television broadcasting by satellite which may assist in social and economic development particularly in the developing countries.

#### CONSENT AND PARTICIPATION

##### *Alternative A*

Direct television broadcasting by means of artificial Earth satellites specifically aimed at a foreign State shall require the consent of that State. The consenting State shall have the right to participate in activities which involve coverage of territory under its jurisdiction. This participation shall be governed by appropriate arrangements between the States involved.

The consent and participation referred to in Principle . . . shall not apply where coverage of the territory of a foreign State results from radiation of the satellite signal within the limits considered technically unavoidable under the Radio Regulations of the International Telecommunication Union.

##### *Alternative B*

Direct television broadcasting by satellite should be conducted in accordance with the principles set out herein, and in particular in accordance with principle. . .<sup>146</sup> It may be subject to such restrictions imposed by the State carrying out or authorizing it as are compatible with the generally accepted rules of international law relating to freedom of expression, which includes freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers.

The consent of any State in which such broadcasting is received is not required, but the State carrying it out or authorizing it should consult fully with any such receiving State which so requests concerning any restrictions to be imposed by the former State. The foregoing is without prejudice to the restrictions which may be imposed in accordance with international law on technical grounds.

<sup>145</sup> Which relates to the applicability of international law.

<sup>146</sup> Which related to participation and co-operation.





## APPENDIX A

[Excerpted from International Legal Materials, Vol. X, No. 4, July 1971, p. 965 ff.]

### CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS\*

*The States Parties to this Convention,*

*Recognizing* the common interest of all mankind in furthering the exploration and use of outer space for peaceful purposes,

*Recalling* the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,

*Taking into consideration* that, notwithstanding the precautionary measures to be taken by States and international intergovernmental organizations involved in the launching of space objects, damage may on occasion be caused by such objects,

*Recognizing* the need to elaborate effective international rules and procedures concerning liability for damage caused by space objects and to ensure, in particular, the prompt payment under the terms of this Convention of a full and equitable measure of compensation to victims of such damage,

*Believing* that the establishment of such rules and procedures will contribute to the strengthening of international co-operation in the field of the exploration and use of outer space for peaceful purposes,

*Have agreed* on the following:

#### *Article I*

For the purposes of this Convention:

(a) The term "damage" means loss of life, personal injury or other impairment of health; or loss or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations;

(b) The term "launching" includes attempted launching;

(c) The term "launching State" means:

(i) A State which launches or procures the launching of a space object;

(ii) A State from whose territory or facility a space object is launched;

(d) The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof.

#### *Article II*

A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight.

\*General Assembly Resolution 2777 (XXVII), 29 November 1971.

*Article III*

In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.

*Article IV*

1. In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, and of damage thereby being caused to a third State or to its natural or juridical persons, the first two States shall be jointly and severally liable to the third State, to the extent indicated by the following:

(a) If the damage has been caused to the third State on the surface of the earth or to aircraft in flight, their liability to the third State shall be absolute;

(b) If the damage has been caused to a space object of the third State or to persons or property on board that space object elsewhere than on the surface of the earth, their liability to the third State shall be based on the fault of either of the first two States or on the fault of persons for whom either is responsible.

2. In all cases of joint and several liability referred to in paragraph 1, the burden of compensation for the damage shall be apportioned between the first two States in accordance with the extent to which they were at fault; if the extent of the fault of each of these States cannot be established, the burden of compensation shall be apportioned equally between them. Such apportionment shall be without prejudice to the right of the third State to seek the entire compensation due under this Convention from any or all of the launching States which are jointly and severally liable.

*Article V*

1. Whenever two or more States jointly launch a space object, they shall be jointly and severally liable for any damage caused.

2. A launching State which has paid compensation for damage shall have the right to present a claim for indemnification to other participants in the joint launching. The participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation in respect of which they are jointly and severally liable. Such agreements shall be without prejudice to the right of a State sustaining damage to seek the entire compensation due under this Convention from any or all of the launching States which are jointly and severally liable.

3. A State from whose territory or facility a space object is launched shall be regarded as a participant in a joint launching.

*Article VI*

1. Subject to the provisions of paragraph 2, exoneration from absolute liability shall be granted to the extent that a launching State establishes that the damage has resulted either wholly or



partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical persons it represents.

2. No exoneration whatever shall be granted in cases where the damage has resulted from activities conducted by a launching State which are not in conformity with international law including, in particular, the Charter of the United Nations and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

### *Article VII*

The provisions of this Convention shall not apply to damage caused by a space object of a launching State to:

- (a) Nationals of that launching State;
- (b) Foreign nationals during such time as they are participating in the operation of that space object from the time of its launching or at any stage thereafter until its descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State.

### *Article VIII*

1. A State which suffers damage, or whose natural or juridical persons suffer damage, may present to a launching State a claim for compensation for such damage.

2. If the State of nationality has not presented a claim, another State may, in respect of damage sustained in its territory by any natural or juridical person, present a claim to a launching State.

3. If neither the State of nationality nor the State in whose territory the damage was sustained has presented a claim or notified its intention of presenting a claim, another State may, in respect of damage sustained by its permanent residents, present a claim to a launching State.

### *Article IX*

A claim for compensation for damage shall be presented to a launching State through diplomatic channels. If a State does not maintain diplomatic relations with the launching State concerned, it may request another State to present its claim to that launching State or otherwise represent its interests under this Convention. It may also present its claim through the Secretary-General of the United Nations, provided the claimant State and the launching State are both Members of the United Nations.

### *Article X*

1. A claim for compensation for damage may be presented to a launching State not later than one year following the date of the occurrence of the damage or the identification of the launching State which is liable.

2. If, however, a State does not know of the occurrence of the damage or has not been able to identify the launching State which is liable, it may present a claim within one year following the date on which it learned of the aforementioned facts; however, this period shall in

no event exceed one year following the date on which the State could reasonably be expected to have learned of the facts through the exercise of the due diligence.

3. The time-limits specified in paragraphs 1 and 2 shall apply even if the full extent of the damage may not be known. In this event, however, the claimant State shall be entitled to revise the claim and submit additional documentation after the expiration of such time-limits until one year after the full extent of the damage is known.

### *Article XI*

1. Presentation of a claim to a launching State for compensation for damage under this Convention shall not require the prior exhaustion of any local remedies which may be available to a claimant State or to natural or juridical persons it represents.

2. Nothing in this Convention shall prevent a State, or natural or juridical persons it might represent, from pursuing a claim in the courts or administrative tribunals or agencies of a launching State. A State shall not, however, be entitled to present a claim under this Convention in respect of the same damage for which a claim is being pursued in the courts or administrative tribunals or agencies of a launching State or under another international agreement which is binding on the States concerned.

### *Article XII*

The compensation which the launching State shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred.

### *Article XIII*

Unless the claimant State and the State from which compensation is due under this Convention agree on another form of compensation, the compensation shall be paid in the currency of the claimant State or, if that State so requests, in the currency of the State from which compensation is due.

### *Article XIV*

If no settlement of a claim is arrived at through diplomatic negotiations as provided for in article IX, within one year from the date on which the claimant State notifies the launching State that it has submitted the documentation of its claim, the parties concerned shall establish a Claims Commission at the request of either party.

### *Article XV*

1. The Claims Commission shall be composed of three members: one appointed by the claimant State, one appointed by the launching State and the third member, the Chairman, to be chosen by both parties jointly. Each party shall make its appointment within two months of the request for the establishment of the Claims Commission.

2. If no agreement is reached on the choice of the Chairman within four months of the request for the establishment of the Claims Commission, either party may request the Secretary-General of the United Nations to appoint the Chairman within a further period of two months.

#### *Article XVI*

1. If one of the parties does not make its appointment within the stipulated period, the Chairman shall, at the request of the other party, constitute a single-member Claims Commission.

2. Any vacancy which may arise in the Claims Commission for whatever reason shall be filled by the same procedure adopted for the original appointment.

3. The Claims Commission shall determine its own procedure.

4. The Claims Commission shall determine the place or places where it shall sit and all other administrative matters.

5. Except in the case of decisions and awards by a single-member Commission, all decisions and awards of the Claims Commission shall be by majority vote.

#### *Article XVII*

No increase in the membership of the Claims Commission shall take place by reason of two or more claimant States or launching States being joined in any one proceeding before the Commission. The claimant States so joined shall collectively appoint one member of the Commission in the same manner and subject to the same conditions as would be the case for a single claimant State. When two or more launching States are so joined, they shall collectively appoint one member of the Commission in the same way. If the claimant States or the launching States do not make the appointment within the stipulated period, the Chairman shall constitute a single-member Commission.

#### *Article XVIII*

The Claims Commission shall decide the merits of the claim for compensation and determine the amount of compensation payable, if any.

#### *Article XIX*

1. The Commission shall act in accordance with the provisions of article XII.

2. The decision of the Commission shall be final and binding if the parties have so agreed; otherwise the Commission shall render a final and recommendatory award, which the parties shall consider in good faith. The Commission shall state the reasons for its decision or award.

3. The Commission shall give its decision or award as promptly as possible and not later than one year from the date of its establishment unless an extension of this period is found necessary by the Commission.

4. The Commission shall make its decision or award public. It shall deliver a certified copy of its decision or award to each of the parties and to the Secretary-General of the United Nations.

#### *Article XX*

The expenses in regard to the Claims Commission shall be borne equally by the parties, unless otherwise decided by the Commission.



*Article XXI*

If the damage caused by a space object presents a large-scale damage to human life or seriously interferes with the living conditions of the population or the functioning of vital centres, the States Parties, and in particular the launching State, shall examine the possibility of rendering appropriate and rapid assistance to the State which has suffered the damage, when it so requests. However, nothing in this article shall affect the rights or obligations of the States Parties under this Convention.

*Article XXII*

1. In this Convention, with the exception of articles XXIV to XXVII, references to States shall be deemed to apply to any international intergovernmental organization which conducts space activities if the organization declares its acceptance of the rights and obligations provided for in this Convention and if a majority of the States members of the organization are States Parties to this Convention and to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies.

2. States members of any such organization which are States Parties to this Convention shall take all appropriate steps to ensure that the organization makes a declaration in accordance with the preceding paragraph.

3. If an international intergovernmental organization is liable for damage by virtue of the provisions of this Convention, that organization and those of its members which are States Parties to this Convention shall be jointly and severally liable; provided, however, that:

- (a) Any claim for compensation in respect of such damage shall be first presented to the organization;
- (b) Only where the organization has not paid, within a period of six months, any sum agreed or determined to be due as compensation for such damage, may the claimant State invoke the liability of the members which are States Parties to this Convention for the payment of that sum.

4. Any claim, pursuant to the provisions of this Convention, for compensation in respect of damage caused to an organization which has made a declaration in accordance with paragraph 1 of this article shall be presented by a State member of the organization which is a State Party to this Convention.

*Article XXIII*

1. The provisions of this Convention shall not affect other international agreements in force insofar as relations between the States Parties to such agreements are concerned.

2. No provision of this Convention shall prevent States from concluding international agreements reaffirming, supplementing or extending its provisions.

*Article XXIV*

1. This Convention shall be open to all States for signature. Any State which does not sign this Convention before its entry into force

in accordance with paragraph 3 of this article may accede to it at any time.

2. This Convention shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics, and the United States of America, which are hereby designated the Depositary Governments.

3. This Convention shall enter into force on the deposit of the fifth instrument of ratification.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Convention, the date of its entry into force and other notices.

6. This Convention shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

### *Article XXV*

Any State Party to this Convention may propose amendments to this Convention. Amendments shall enter into force for each State Party to the Convention accepting the amendments upon their acceptance by a majority of the State Parties to the Convention and thereafter for each remaining State Party to the Convention on the date of acceptance by it.

### *Article XXVI*

Ten years after the entry into force of this Convention, the question of the review of this Convention shall be included in the provisional agenda of the United Nations General Assembly in order to consider, in the light of past application of the Convention, whether it requires revision. However, at any time after the Convention has been in force for five years, and at the request of one-third of the States Parties to the Convention, and with the concurrence of the majority of the States Parties, a conference of the States Parties shall be convened to review this Convention.

### *Article XXVII*

Any State Party to this Convention may give notice of its withdrawal from the Convention one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.

### *Article XXVIII*

This Convention, of which the English, Russian, French, Spanish and Chinese texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Convention shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Convention.

DONE in \_\_\_\_\_ at the cities of London, Moscow and Washington, the \_\_\_\_\_ day of \_\_\_\_\_ one thousand nine hundred and \_\_\_\_\_.



## APPENDIX B

### UNITED NATIONS GENERAL ASSEMBLY

[Twenty-ninth session  
Agenda item 32, Nov. 26, 1974]

#### RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY

[On the report of the First Committee (A/9812)]

3235 (XXIX). *Convention on Registration of Objects Launched into Outer Space*

*The General Assembly,*

*Reaffirming* the importance of international co-operation in the field of the exploration and peaceful uses of outer space, including the Moon and other celestial bodies, and of promoting the rule of law in this new field of human endeavour,

*Desiring*, in the light of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,<sup>1</sup> the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space<sup>2</sup> and the Convention on International Liability for Damage Caused by Space Objects,<sup>3</sup> to make provision for registration by launching States of space objects launched into outer space with a view, *inter alia*, to providing States with additional means and procedures to assist in the identification of space objects,

*Bearing in mind* its resolution 3182 (XXVIII) of 18 December 1973, in which it requested the Committee on the Peaceful Uses of Outer Space to consider as a matter of priority the completion of the text of the draft Convention on Registration of Objects Launched into Outer Space,

*Having considered* the report of the Committee on the Peaceful Uses of Outer Space,<sup>4</sup>

*Noting with satisfaction* that the Committee on the Peaceful Uses of Outer Space and its Legal Sub-Committee have completed the text of the draft Convention on Registration of Objects Launched into Outer Space,

1. *Commends* the Convention on Registration of Objects Launched into Outer Space, the text of which is annexed to the present resolution;

<sup>1</sup> General Assembly resolution 2222 (XXI), annex.

<sup>2</sup> General Assembly resolution 2345 (XXII), annex.

<sup>3</sup> General Assembly resolution 2777 (XXVI), annex.

<sup>4</sup> *Official Records of the General Assembly, Twenty-ninth Session, Supplement No. 20 (A/9620).*

2. *Requests* the Secretary-General to open the Convention for signature and ratification at the earliest possible date;

3. *Expresses its hope* for the widest possible adherence to this Convention.

[2280th plenary meeting 12 November 1974]

## ANNEX

### *Convention on Registration of Objects Launched into Outer Space*

*The States Parties to this Convention,*

*Recognizing* the common interest of all mankind in furthering the exploration and use of outer space for peaceful purposes,

*Recalling* that the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 27 January 1967 affirms that States shall bear international responsibility for their national activities in outer space and refers to the State on whose registry an object launched into outer space is carried,

*Recalling also* that the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space of 22 April 1968 provides that a launching authority shall, upon request, furnish identifying data prior to the return of an object it has launched into outer space found beyond the territorial limits of the launching authority,

*Recalling further* that the Convention on International Liability for Damage Caused by Space Objects of 29 March 1972 establishes international rules and procedures concerning the liability of launching States for damage caused by their space objects,

*Desiring*, in the light of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, to make provision for the national registration by launching States of space objects launched into outer space,

*Desiring further* that a central register of objects launched into outer space be established and maintained, on a mandatory basis, by the Secretary-General of the United Nations,

*Desiring also* to provide for States Parties additional means and procedures to assist in the identification of space objects,

*Believing* that a mandatory system of registering objects launched into outer space would, in particular, assist in their identification and would contribute to the application and development of international law governing the exploration and use of outer space,

*Have agreed* on the following:

### *Article I*

For the purposes of this Convention:

(a) The term "launching State" means:

(i) A State which launches or procures the launching of a space object;

(ii) A State from whose territory or facility a space object is launched;

(b) The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof;

(c) The term "State of registry" means a launching State on whose registry a space object is carried in accordance with article II.

### *Article II*

1. When a space object is launched into earth orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry.

2. Where there are two or more launching States in respect of any such space object, they shall jointly determine which one of them shall register the object in accordance with paragraph 1 of this article, bearing in mind the provisions of article VIII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and without prejudice to appropriate agreements concluded or to be concluded among the launching States on jurisdiction and control over the space object and over any personnel thereof.

3. The contents of each registry and the conditions under which it is maintained shall be determined by the State of registry concerned.

### *Article III*

1. The Secretary-General of the United Nations shall maintain a Register in which the information furnished in accordance with article IV shall be recorded.

2. There shall be full and open access to the information in this Register.

### *Article IV*

1. Each State of registry shall furnish to the Secretary-General of the United Nations, as soon as practicable, the following information concerning each space object carried on its registry:

- (a) Name of launching State or States;
- (b) An appropriate designator of the space object or its registration number;
- (c) Date and territory or location of launch;
- (d) Basic orbital parameters, including:
  - (i) Nodal period,
  - (ii) Inclination,
  - (iii) Apogee.
  - (iv) Perigee;
- (e) General function of the space object.

2. Each State of registry may, from time to time, provide the Secretary-General of the United Nations with additional information concerning a space object carried on its registry.

3. Each State of registry shall notify the Secretary-General of the United Nations, to the greatest extent feasible and as soon as practicable, of space objects concerning which it has previously transmitted information, and which have been but no longer are in earth orbit.



*Article V*

Whenever a space object launched into earth orbit or beyond is marked with the designator or registration number referred to in article IV, paragraph 1 (b), or both, the State of registry shall notify the Secretary-General of this fact when submitting the information regarding the space object in accordance with article IV. In such case, the Secretary-General of the United Nations shall record this notification in the Register.

*Article VI*

Where the application of the provisions of this Convention has not enabled a State Party to identify a space object which has caused damage to it or to any of its natural or juridical persons, or which may be of a hazardous or deleterious nature, other States Parties, including in particular States possessing space monitoring and tracking facilities, shall respond to the greatest extent feasible to a request by that State Party, or transmitted through the Secretary-General on its behalf, for assistance under equitable and reasonable conditions in the identification of the object. A State Party making such a request shall, to the greatest extent feasible, submit information as to the time, nature and circumstances of the events giving rise to the request. Arrangements under which such assistance shall be rendered shall be the subject of agreement between the parties concerned.

*Article VII*

1. In this Convention, with the exception of articles VIII to XII inclusive, references to States shall be deemed to apply to any international intergovernmental organization which conducts space activities if the organization declares its acceptance of the rights and obligations provided for in this Convention and if a majority of the States members of the organization are States Parties to this Convention and to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

2. States members of any such organization which are States Parties to this Convention shall take all appropriate steps to ensure that the organization makes a declaration in accordance with paragraph 1 of this article.

*Article VIII*

1. This Convention shall be open for signature by all States at United Nations Headquarters in New York. Any State which does not sign this Convention before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Convention shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Secretary-General of the United Nations.

3. This Convention shall enter into force among the States which have deposited instruments of ratification on the deposit of the fifth such instrument with the Secretary-General of the United Nations.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it

shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Secretary-General shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Convention, the date of its entry into force and other notices.

### *Article IX*

Any State Party to this Convention may propose amendments to the Convention. Amendments shall enter into force for each State Party to the Convention accepting the amendments upon their acceptance by a majority of the States Parties to the Convention and thereafter for each remaining State Party to the Convention on the date of acceptance by it.

### *Article X*

Ten years after the entry into force of this Convention, the question of the review of the Convention shall be included in the provisional agenda of the United Nations General Assembly in order to consider, in the light of past application of the Convention, whether it requires revision. However, at any time after the Convention has been in force for five years, at the request of one third of the States Parties to the Convention and with the concurrence of the majority of the States Parties, a conference of the States Parties shall be convened to review this Convention. Such review shall take into account in particular any relevant technological developments, including those relating to the identification of space objects.

### *Article XI*

Any State Party to this Convention may give notice of its withdrawal from the Convention one year after its entry into force by written notification to the Secretary-General of the United Nations. Such withdrawal shall take effect one year from the date of receipt of this notification.

### *Article XII*

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified copies thereof to all signatory and acceding States.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto by their respective Governments, have signed this Convention, opened for signature at New York on . . .





## APPENDIX C

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### SPACE COMMUNICATIONS ORGANIZATION "INTERSPUTNIK"

#### 49. AGREEMENT ON THE CREATION OF THE INTERNATIONAL SYSTEM AND SPACE COMMUNICATIONS ORGANIZATION "INTERSPUTNIK"

Tokareva (1972), pp. 387-396

The Contracting Parties,

recognizing the need to promote the strengthening and development of comprehensive economic, scientific, and technical, cultural, and other relations through communications, as well as radio and television broadcasts through artificial earth satellites;

recognizing the usefulness of cooperation in theoretical and experimental research and in the planning, creation, operation, and development of an international system of communications through artificial earth satellites;

in the interest of developing international cooperation on the basis of respect for the sovereignty and independence of states, equality, noninterference in internal affairs, as well as mutual assistance and mutual advantage; and

proceeding from the provisions of Resolution 1721 (XVI) of the General Assembly of the United Nations and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, dated January 27, 1967,

agreed upon the following:

#### *Article 1*

1. An international communications system through artificial earth satellites shall be created.

2. In order to ensure cooperation and the coordination of efforts on the planning, creation, operation, and development of the communications system, the Contracting Parties shall found the international organization "Intersputnik," hereinafter, the "Organization."

#### *Article 2*

1. "Intersputnik" shall be an open international organization.

2. Governments that have signed the present Agreement and that have deposited documents on its ratification in accordance with Article 20, as well as the governments of other countries that have acceded to the present Agreement in accordance with Article 22, shall be members of the Organization.

*Article 3*

The headquarters of the Organization shall be Moscow.

*Article 4*

1. The international communications system through artificial earth satellites shall include among its components:

—a space complex consisting of communications satellites with retranslators, airborne devices and ground control systems ensuring the normal functioning of satellites;

—ground stations effecting liaison through artificial earth satellites.

2. The space complex shall be in the ownership of the Organization or leased from Organization Members having such systems.

3. Ground stations shall be the property of countries or of recognized operational organizations.

4. Members of the Organization shall have the right to incorporate ground stations built by them in the communications system of the Organization if these stations satisfy the technical requirements of the Organization.

*Article 5*

The creation of the international communications system shall be provided in the following stages:

—the stage of experimental work by Members of the Organization at their ground stations using communications channels made available free of charge by the Union of Soviet Socialist Republics in its communications satellites. The duration of this stage shall be established prior to the end of 1973;

—the stage of work with the use of communications channels based on communications satellites of Members of the Organization on a lease basis;

—the stage of commercial operation of the communications system with the use of a space complex which is the property of the Organization or which is leased from its Members. The transition to this stage will be made when the creation of the space complex belonging to the Organization or the leasing of this complex are recognized as economically expedient by the Contracting Parties.

*Article 6*

The launching and orbiting of communications satellites that are the property of the Organization, and the control of them in orbit, shall be carried out by Members of the Organization that have the appropriate means therefor on the basis of agreements between the Organization and such Members of the Organization.

*Article 7*

The Organization shall coordinate its activity with the International Telecommunications Union and also cooperate with other organizations, whose activity is related to the use of communications satellites in a technical sense (the use of a frequency spectrum, the application of technical norms for communications channels, and standards for apparatus) as well as in matters of international regulation.

*Article 8*

The Organization shall be a juridical person and empowered to conclude treaties, to acquire, lease, and alienate property and undertake procedural actions.

*Article 9*

1. On the territory of states whose governments are Members of the Organization, it shall enjoy the legal capacity necessary for the attainment of its objectives and the implementation of its functions. The extent of this legal capacity will be determined in the appropriate agreements with competent organs of states on whose territory it carries out its activity.

2. As regards questions not regulated by the present Agreement or by agreements indicated in Point 1 of the present Article, the legislation of the states on whose territory the activity of the Organization is carried out shall apply.

*Article 10*

1. The Organization shall bear material responsibility for its obligations within the limits of the property belonging to it.

2. The Organization shall not bear material responsibility for the obligations of the Contracting Parties, just as the Contracting Parties shall not be responsible for the obligations of the Organization.

*Article 11*

1. The following organs shall be created for the purpose of directing the activity of the Organization:

- the Council—the directing organ;
- the Directorate—the permanent executive and administrative organ headed by the Director General.

The time of creation and the commencement of the activity of the Directorate shall be determined by the Council.

2. Prior to the commencement of the activity of the Directorate, the functions of the Director General in representing the Organization indicated in Point 2 of Article 13 shall be fulfilled by the Chairman of the Council.

3. An Auditing Commission shall be created for the purpose of controlling the financial activity of the Organization.

4. The Council may institute such auxiliary organs as are necessary for the realization of the objectives of the present Agreement.

*Article 12*

1. There shall be one representative from each Member of the Organization on the Council.

2. Each Member of the Organization shall have one vote on the Council.

3. The Council shall hold regular sessions at least once a year. An extraordinary session may be called at the request of any Member of the Organization or of the Director General if at least one-third of the Members of the Organization are so inclined.



4. As a rule, sessions of the Council shall be held at the headquarters of the Organization. The Council may decide to hold sessions on the territory of other states whose governments are Members of the Organization at the invitation of these Members of the Organization.

Before the activity of the Directorate commences, the Council shall assemble in turn in states whose governments are Members of the Organization according to the order of their names in the Russian alphabet. In this event the expenses of the sessions shall be borne by the host Members of the Organization.

5. Sessions of the Council shall be chaired in turn by Members of the Organization according to the order of the names of these Members of the Organization in the Russian alphabet. The representative of the Member of the Organization who is next according to the alphabet shall be appointed deputy chairman. The chairman and his deputy shall retain their powers until the next regular session of the Council.

6. The questions embraced by the present Agreement shall be within the competence of the Council. The Council shall:

1) consider and confirm measures pertaining to the creation, acquisition, or leasing, as well as to the operation of a space complex;

2) confirm plans for the development and improvement of the Organization's system of communications;

3) determine the technical demands on the Organization's communications satellites;

4) consider and confirm the program for the orbiting of communications satellites of the Organization;

5) confirm the plan for the distribution of communications channels among Members of the Organization, as well as the procedure and conditions for the use of communications channels by other consumers;

6) determine the technical requirements for ground stations;

7) determine the correspondence of ground stations offered for incorporation in the Organization's system of communications and the technical demands;

8) elect the Director General and his deputy and control the activity of the Directorate;

9) elect the chairman and members of the Auditing Commission and confirm the procedure governing the work of that commission;

10) confirm the structure and staff of the Directorate, as well as the Statute on Directorate Personnel;

11) confirm the work plan of the Organization for the next calendar year;

12) consider and confirm the budget of the Organization and the report on its fulfillment, as well as the balance and distribution of the Organization's profits;

13) consider and confirm annual reports of the Director General on the activity of the Directorate;

14) confirm the report of the Auditing Commission;

15) take cognizance of official statements of governments desiring to accede to the Agreement;

16) determine the procedure and periods for the payment of share fees, as well as the redistribution of share fees in accordance with Point 5 of Article 15;

17) determine the rate for the transmission of a unit of information or the cost of leasing a channel on communications satellites belonging to the Organization;

18) consider proposed amendments to the present Agreement and propose to the Contracting Parties they be approved in the procedure established in Article 24;

19) adopt rules of procedure for its work;

20) consider and resolve other questions arising from the Agreement.

7. The Council must strive so that its decisions are adopted unanimously. When this is not achieved, the decisions of the Council shall be considered to be adopted when at least two-thirds of all Members of the Council vote for them. The decisions of the Council shall not be binding on Members that did not vote for them and that stated a reservation pertaining to them in written form; however, subsequently these Members may accede to the decisions adopted.

8. In the execution of its functions provided in Point 6 of the present Article, the Council shall operate within the limits of the resources established by the Contracting Parties.

9. The first session of the Council shall be convened by the government of the state in which the headquarters of the Organization has been established no later than three months after the present Agreement takes effect.

### *Article 13*

1. The Directorate shall consist of the Director General, his deputy, and the necessary personnel.

2. Operating on the principles of one-man management, the Director General shall be the chief administrative person of the Organization and in this capacity shall represent it in relations with competent agencies of Members of the Organization on all questions pertaining to its activity, as well as in relations with states whose governments are not members of the Organization and international organizations with which the Council deems it necessary to cooperate.

3. The Director General shall be responsible to the Council and operate within the limits of the powers that are conferred upon him by the present agreement and by the decision of the Council.

4. The Director General shall exercise the following functions:

1) secure the fulfillment of the Council's decisions;

2) conduct negotiations with communications administrations, planning organizations, and industrial enterprises of Members of the Organization on questions relating to the planning, manufacture, and delivery of elements and blocks of vehicle-borne equipment for the Organization's communications satellites;

3) conduct negotiations on questions pertaining to the launching of communications satellites for the Organization;

4) at the commission of the Council, conclude international and other agreements within the framework of the powers established by the Council;

5) draw up the draft budget for the regular fiscal year, submit it for confirmation by the Council, and report to the Council on the execution of the budget for the past fiscal year;

6) prepare a report on the activity of the Directorate for the preceding year for submission to the Council;

7) work out draft plans for the work of the Organization, as well as for the development and improvement of the communications system and submit them to the Council for confirmation;

8) prepare, convene, and conduct sessions of the Council.

5. The Director General and his deputy shall be elected for a period of four years from the citizens of states whose governments are Members of the Organization. As a rule, the Deputy Director General may be elected for only one term. The Director General and his deputy may not be citizens of the same state.

6. The personnel of the Directorate shall be citizens of states whose governments are Members of the Organization, chosen with regard to their professional competence and to just geographical representation.

#### *Article 14*

1. The Auditing Commission shall be made up of three members elected by the Council for a period of three years from citizens of different states whose governments are Members of the Organization.

The Chairman and Members of the Auditing Commission may not occupy any other posts in the Organization.

2. The Director General shall place all the materials and documents required for the audit at the disposal of the Auditing Commission.

3. The report of the Auditing Commission shall be submitted to the Council of the Organization.

#### *Article 15*

1. Charter capital (fixed and working capital) shall be created to support the activity of the Organization. The decision on the creation of charter capital and on the amount of charter capital shall be adopted by the Contracting Parties at the proposal of the Council and formalized by a special protocol. The amount of the share participation of Members of the Organization in the formation of the charter capital shall be established in proportion to the degree to which they use the communications channels.

2. If in the process of improving the communications system it shall become necessary to increase the charter capital, the sum of the additional contributions shall be subject to distribution among Members of the Organization who have expressed consent for this increase.

3. Contributions by Members of the Organization to the charter capital shall cover the following expenditures of the Organization:

1) for research and experimental design work on the space complex and on ground stations;

2) for the designing, creation, acquisition or leasing of the space complex;

3) for the launching and orbiting of communications satellites belonging to the Organization;

4) for other purposes connected with the activity of the Organization.

4. Prior to the formation of the charter capital, the activity of the Organization shall be carried out in accordance with a special budget drawn up for each calendar year. Expenditures stipulated in the budget for the maintenance of the Directorate's personnel, for



conducting sessions of the Council, and for other measures of an administrative character shall be covered by Members of the Organization in amounts established by the Contracting Parties at the proposal of the Council and formalized by a special protocol.

5. Upon the admission of new Members to the Organization or upon the withdrawal of a Member from the Organization, the share of the contributions of the remaining Members of the Organization shall change correspondingly.

6. The currency in which contributions are made to the charter capital and to the budget of the Organization shall be determined by the Contracting Parties upon the proposal of the Council.

7. The Organization shall charge three percent annual interest on sums not paid by members of the Organization within the established period.

8. In the event Members do not fulfill their financial obligations for one year, the Council shall decide whether to suspend in part or in full the rights arising from their membership in the Organization.

9. The profit received from the operation of the communications system shall be distributed among Members of the Organization in proportion to the amount of their contributions. By decision of Members of the Organization, the profit may be used to increase the charter capital or for the creation of special funds of one kind or another.

10. Expenditures on the maintenance of participants in conferences and meetings connected with the fulfillment of the tasks of the Organization, including meetings of the Council, shall be borne by the Contracting Parties that send their representatives to such conferences and meetings.

#### *Article 16*

1. The Organization shall operate the space complex, making, in accordance with the provisions of the present Agreement, communications channels available to its Members and to other consumers.

2. Communications channels that the Organization has at its disposal shall be distributed among Members of the Organization on the basis of their need for channels. Communications channels exceeding the general need of all Members of the Organization may be leased to other users.

3. Communications channels shall be made available at rates established by the Council. The rates must be at the level of the average world rates calculated in gold francs.

The procedure for settling accounts for communications services shall be determined by the Council.

#### *Article 17*

1. Any Contracting Party may denounce the present Agreement, sending a written notification thereof to the depositary government.

The denunciation of the Agreement by that Contracting Party shall become effective at the end of the fiscal year in which one year elapses from the date of the notification of the depositary government of this denunciation. This Contracting Party must pay within the periods established by the Council all contributions set

for it for the fiscal year in which the denunciation becomes effective and must also carry out all other financial obligations that it has assumed.

2. The amount of monetary compensation to the Contracting Party denouncing the Agreement shall be determined by the Council in accordance with the amount of the contributions of that Contracting Party to the charter capital of the Organization, with due regard to the depreciation and obsolescence of the fixed capital. Monetary compensation shall be paid out after the Council has confirmed the budget report for the fiscal year in which the denunciation becomes effective.

#### *Article 18*

1. The present Agreement may be terminated with the consent of all Contracting Parties.

The termination of the Agreement shall signify the liquidation of the Organization.

The procedure for the liquidation of the Organization shall be determined by the Council.

2. In the event of the liquidation of the Organization, its fixed capital shall be sold and Members of the Organization paid monetary compensation in accordance with their share participation in capital expenditures on the creation of the communications system, with due regard to the depreciation and obsolescence of the fixed capital. Available working capital, with the exception of the part that is used to pay off the obligations of the Organization, shall be distributed among Members of the Organization in proportion to the actual monetary contributions as of the day on which the Organization is liquidated.

#### *Article 19*

English, Spanish, Russian, and French shall be the languages of the Organization.

The degree of use of languages shall be decided by the Council depending on the actual needs of the Organization.

#### *Article 20*

1. The present Agreement shall be open for signing up to December 31, 1972, in Moscow.

2. The Agreement shall be subject to ratification. Instruments of ratification are transferred for keeping to the USSR Government, which is designated as the depositary of the present Agreement.

#### *Article 21*

The Agreement shall take effect after six instruments of ratification have been deposited.

#### *Article 22*

1. The government of any state which has not signed the present Agreement may accede to it. In this event the government shall submit to the Council of the Organization an official declaration that it shares the goals and principles of activity of the Organization and assumes the obligations arising from the present Agreement.

2. Documents on accession to the Agreement shall be given to the keeping of the depositary government.

*Article 23*

For governments that have transmitted instruments of ratification or accession documents for keeping after the present agreement has taken effect, it shall become effective on the day that they transmit the said acts for keeping.

*Article 24*

Amendments to the present Agreement shall take effect for each Contracting Party which adopts these amendments after they have been approved by two-thirds of the Contracting Parties. After it becomes effective, the amendment shall become binding on other Contracting Parties after they have adopted such an amendment.

*Article 25*

1. The depositary government of the present Agreement shall notify all Contracting Parties of the date of each signature, the date that each instrument of ratification and each accession documentation is transmitted for keeping, the date that the agreement takes effect, and all other notifications received by it.

2. The present Agreement will be registered by the depositary government in accordance with Article 102 of the Charter of the United Nations.

*Article 26*

The present Agreement, the Russian, English, Spanish, and French texts of which are equally authentic, will be transmitted for keeping to the archives of the depositary government. Certified copies of the Agreement will be properly dispatched to the Contracting Parties by the depositary government.

In witness whereof, those properly authorized to do so have signed the present Agreement.

Done at Moscow, November 15, 1971.

*Editor's Note*

The Agreement was signed by plenipotentiary representatives of the governments of Bulgaria, Hungary, the GDR, the Republic of Cuba, Mongolia, Poland, Rumania, the USSR, and Czechoslovakia. The Agreement entered into force on July 12, 1972.













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